Appendix A • Scoping Comment Analysis

Scoping Comment Summary Final November 2001

This document lists all comments received in response to the Proposed Action and subsequent clarification comments and discussions. The comments are listed here as either preliminary issues or non-issue comments or questions. A second document takes the preliminary issues and divides them into two categories, significant issues or nonsignificant issues. A third document takes the significant issues and divides them into alternatives eliminated from detailed study or action alternatives. These three documents show the progression of the comment analysis process. Comments are followed by notes by FS team members in italics.

Preliminary Issues Raised by Public

Bird (April – Response to NOI)

There are concerns from Mt. Trumbull that residual trees in a similar silvicultural-restoration application where lost to mortality. It may be that the residual tree mortality was related to the effects of prescribed burning in combination with unique soil types that resulted in irreversible damage to root systems. The FS must account for such unforeseen possibilities in the Kachina Analysis Area by completing extensive soil surveys, and identifying sensitive soil types where similar mortality might occur. Prescribed burning should be planned spatially and temporally to account for such sensitive soils. Will the ground disturbance associated with silvicultural treatments also impact these sensitive soils?

Bird (April – Response to NOI)

We are concerned that the Kachina Timber Sale will jeopardize the viability of species that thrive in forest ecosystems through activities associated with timber harvest and ground-disturbing activities intervene in natural disturbance processes that are vital to ecosystem sustainability and degrade water quality and watershed condition. There are populations of focal species and species-at-risk (MIS and TES) that occupy the analysis area and surrounding landscapes that seem to be surviving despite the "unnatural conditions" the Forest Service purports to exist. The FS is required per its 1987 LRMP as well as Federal planning regulations to collect and present information on population numbers and trends for these species as well as define what constitutes the "minimum number" of individuals of each population to secure its long-term viability. The FS must present information to support determinations that the proposed Kachina Timber Sale will not contribute to further declines in these populations and more listing under the ESA. Simply, it is too soon to know how the "treatments" at Fort Valley will affect focal species and species-at-risk.

Bird (April – Response to NOI)

The Kachina Timber Sale will also damage social and economic uses and values associated with natural forests for the benefit of the timber industry, even though non-timber uses and values are far more important to local communities.

Nowicki

A 16-inch diameter cutting cap is critical. Many sites have been commercially harvested removing a large component of the larger trees from forest structure. Existing large blackjacks will develop into the next generation of old growth. Retaining 16-inch dbh or greater provides some assurance the proposed action would not detriment this forest structure further. A 16-inch cap would not impede any of the treatments meeting the stated objectives. (Nowicki Clarification Comment) In fact, even a 12-inches dbh cutting cap would not impede the treatments from achieving the stated objectives, as a large proportion of the trees in the project are smaller than 12-inches dbh. That is, thinning treatments would be able to create a diversity of stand densities and structures by implementing varying levels of thinning the trees less than 12-inches dbh. This analysis and cutting cap is absolutely necessary to protecting vital components of the current forest structure, and the next generation of old growth that will develop in the forest.

Nowicki and Nowicki Clarification Comment

No new roads should be constructed, even if only for the duration of the project as roads greatly increase soil compaction, transport of exotic weeds, and long lasting impacts on forest structure. South of Kelly Canyon all thinning should be done by hand; the limitation would not impede any of the treatments from achieving stated objectives.

Nowicki

The EIS needs to include an analysis of the grazing allotments in this area and appropriateness of grazing in general and the deferment needed to allow ground vegetation to respond after thinning.

Metzner

Project is way too big for needs pressing. This is another move by the government to control the people's freedom of movement and grab public lands. Scope of project is way out of line for a natural forest. More controls on camping and where, not needed or wanted. We do not want more controls on people's freedoms. Leave the trails alone for the people who use them.

Bird

The proposal represents a "sledgehammer" approach to forest management, the extensive logging proposed has the potential to exacerbate fire danger, extirpate wildlife, and increase sedimentation and flooding.

Bird

The proposal forces the taxpayer to foot the bill for an enormously expensive project whose benefits are highly uncertain.

Bird

Temporary road construction will simply increase the environmental costs of the Kachina Project, increase fire hazard as they are used by ORV's and provide additional public access. The only reason the roads are needed is to remove commercial materials.

Bird and Nowicki Clarification Letter

It remains entirely unclear what purpose the 3-foot-wide dozer line along the canyon rims will serve. This construction might potentially change the hydrology of the canyon system significantly by redirecting runoff away from the canyon edges.

Do not drive cat lines through the area. For many of the reasons as listed directly above, cat lines should not be used in the area. Fire lines should be created by hand if they are absolutely necessary.

McKinnon and Ack

South of James Canyon, in areas proposed for thinning and burning, cheatgrass (*Bromus tectorum)* is a regular and often dominant understory species. We are concerned that the proposed treatments by themselves—especially burning—may facilitate its further spread and competition with native species. We strongly encourage the Forest Service to assess the need for an integrated strategy to improve, rather that potentially exacerbate the problem, both south of James Canyon and in other locals within the project area where cheatgrass poses a foreseeable risk.

The Nature Conservancy's Wildland Weeds Management and Research Program has developed the following recommendations for the management of cheatgrass. We've attached this document in its entirety as an appendix to these comments for your use.

> Lasting control of cheatgrass will require a combination of chemical control, physical control, vegetative suppression, and proper livestock management where land is grazed. This "cumulative stress" method will keep the plants constantly under stress, reducing their ability to flourish and spread. Also, a cumulative stress approach provides a level of redundancy in case one type of treatment is not implemented or proves to be ineffective.
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> An effective management program needs first to control existing infestations, and second to develop a land management plan to deter re-infestation of Bromus tectorum. New infestations should be controlled first before cheatgrass becomes dominant and alters the soil chemistry of the area (Belnap pers. comm.). Since cheatgrass reproduces entirely by seed, the key to controlling existing infestations is to eliminate new seed production and deplete the existing seed bank.
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> Bromus tectorum is most commonly controlled with herbicides. Quizalofop, fluazifop, sethoxydim, paraquat, glyphosate, and imazameth can be applied in the early spring, before perennial grasses have emerged, to control cheatgrass. Additionally, sulfometuron methyl, and atrazine can be applied in the fall to control cheatgrass in winter crops. Several of these herbicides may damage established perennials. Therefore, the timing of herbicide application is crucial to ensure that cheatgrass is selectively controlled. Burning is usually conducted in late May or early June, after the plants have dried (Beck, pers. comm.). Reseeding native perennial grasses is necessary after burning or cheatgrass and other weeds will simply reestablish in the disturbed area.

A two to three-year combination of burning, herbicide application, and reseeding can be used to control and re-vegetate an area that is almost exclusively dominated by cheatgrass. Burn and re-seed the area with native perennial grasses during the first year. The following spring, apply herbicides before the seeded perennial grasses emerge in order to eliminate any cheatgrass that emerged from the seedbank after the burn. If necessary, apply a second round of herbicides early in the spring of the third year to control any new cheatgrass seedlings and provide time for native bunchgrasses to establish. This should control the cheatgrass, deplete the existing cheatgrass seed bank, and provide adequate time for perennial grasses to establish to the point where they can suppress any new cheatgrass invasions.

If the area is only partially infested with cheatgrass, burning is usually not recommended (Belnap, pers. comm.). Cheatgrass can rebound quickly after a fire and the elimination of the remaining valuable species will only enhance its ability to spread.

Hand pulling cheatgrass is very labor intensive and is worthwhile only on very small infestations. Mowing and cutting are not usually recommended methods of control. Plants that are cut before seed ripening will regenerate new culms and produce seeds at the cut height. Plants that are cut after seed ripening will die, but by this point the seeds are already viable. However, repeated mowing (every three weeks) can eliminate cheatgrass seed production in areas were herbicide applications are unacceptable or cannot be safely used.

Once an area has been treated, native perennial grasses should be plugged and/or re-seeded or cheatgrass will return to pre-burn densities within a few years (Beck, pers. comm.). Hilaria (Hilaria jamesii) has been observed to grow well in cheatgrass infested areas of the Colorado Plateau by taking advantage of warm summer rains (Belnap pers. comm.).

McKinnon and Ack

The interruption of natural processes in southwestern ponderosa pine forests has been attributed to widespread intensive livestock grazing that was introduced in the mid and late 19th century. Upon introduction, livestock grazing removed the herbaceous understory that is believed to have limited pine seedling establishment and therefore also tree densities through competition for light, water, and nutrients, in addition to carrying frequent low intensity ground fires.

In the absence of this "competition fire filter" that limited pine seedling establishment, anomalously high densities of trees have established that now facilitate similarly anomalous high-intensity crown fires that threaten ecological and human values alike. In addition, the pine irruptions have led to a decline in overall biological diversity of these forest ecosystems, much of which was historically based on the understory.

Considering this, perhaps the most critical element to the restoration process for ponderosa pine forests is ensuring that we facilitate understory (grass and forb) recovery. In part this must come through control of herbivores. Of the two major herbivore pressures currently on the landscape (elk and domestic livestock), we can only directly control the intensity, seasonality, and duration of domestic livestock grazing.

We think the appropriate frame of reference for considering post-treatment (thinning and/or burning) livestock grazing begins with the assumption that the most desirable management regime—and the one that will most likely facilitate our restoration goal of understory recovery—is livestock grazing deferral for a period of time.

Based upon our observations at other restoration sites, and discussions with Forest Service personnel, we recommend this period of time span at least three growing seasons. We further recommend that quantitative and qualitative measures of recovery should inform whether, after three growing seasons, livestock should be reintroduced, and if so, at what intensity, seasonality, and duration. One measure of recovery included in this assessment should be whether the native understory is capable of carrying low-intensity grass fires.

Germaine

Item 2 *discusses retaining ponderosa trees "approximately" 150 years or older. It is not clear how and by whom decisions on these trees will be made. Similarly, this Item states that >16" trees will be "retained where possible". What criteria determine retention/removal, and who will make the decision on*

the fate of an unknown number(?) of trees in such an ecologically important size class from which our future old-growth trees are to be recruited? Finally, I urge that all road and landing locations avoid large diameter trees in all instances, not simply "where possible" as stated in the proposal. In addition to soil compaction, old landings have roads that are often traveled for years even if legally closed, and landings under old trees will unquestionably become popular (renegade) campsites.

McKinnon and Ack

We appreciate that the Forest Service has articulated that the vast majority of trees to be thinned will be less than 12 inches and that trees greater than 16-inches diameter at breast height will be retained where possible. ***However, we feel that a 16-inch cap is warranted and should be instituted in accord with the GCFP's recommendation on this project.***

Monitoring of the 16-inch cap at Ft. Valley has revealed that, even in a thinning prescription that gives little deference to tree size, only 2.5 large trees per acre would have been cut in the absence of a diameter cap. And of these trees, only 1 percent were suppressed. The vast majority, or 99 percent of the trees, were dominant or co-dominant trees. Considering the description of thinning from below in the proposed action, "thinning from below results in the removal of smaller, unhealthy trees first and progresses until the target density is reached," it's unclear why any significant reason *not* to include a diameter cap exists.

This is not to ignore the economic realities of restoration. Indeed, smaller trees are more expensive for an operator to handle. There is more handling per unit of wood volume with small trees than larger trees, rendering smaller trees more expensive to thin. If the USFS has an economic argument to make about trees larger than 16 inches, it should make that argument explicitly.

In the absence of such an argument, we believe that there are significant social and political arguments to include a diameter cap. These arguments are of immediate concern to the Grand Canyon Trust and we believe they should be of concern to the Coconino National Forest.

The history of forest management in the Southwest still casts a shadow over our current efforts. It hasn't been very long since most of the big, old trees on the forest were felled at the cost of species viability and overall ecosystem integrity. At the present time, the public perception is that cutting big trees is about revenue generation, and not about the restoration of species and ecosystems.

A 16-inch cap provides the public with a clear, easily communicated guarantee that distinguishes our restoration efforts from those historical practices that have resulted in the need for restoration today. The diameter cap is also about the restoration of public confidence and trust.

With each ensuing discussion of the merits of a diameter cap will come news stories questioning our intent and our legitimacy, using well-honed activist media techniques. These opponents are very effective at whittling away at our legitimacy and weakening public support for restoration. Do we really wish to continue subjecting our efforts to these liabilities?

Having been put in the national spotlight, we also have the responsibility and the opportunity to more clearly define the purpose of restoration by exemplifying the parameters of responsible restoration. Adopting a diameter cap establishes sideboards for restoration that prevent ill-conceived adaptations of our efforts and reinforce a principle we have identified as fundamental to responsible restoration: effective restoration will require substantial reinvestment. Restoration should not be expected to pay for itself.

Considering these points, we are confident that the original recommendation put forth in unanimous resolution by the Grand Canyon Forests Partnership provides a workable and reasonable approach to diameter caps:

> *"Ponderosa pine trees greater than 16" dbh will be retained on the land. Black-barked trees in excess of 16 inches may only be treated to achieve the desired objectives of creating grassy openings or enhancing existing forest openings, or to enhance the health of old growth stands or oak clumps. However, all of these trees will be left standing (recruited) as snags or felled and left as downed logs."*

We strongly encourage the Forest Service to include an alternative that evaluates the impacts of the above recommendation in addition to an alternative that includes and evaluates an 1-inch diameter cap. These evaluations should provide a quantitative explanation of how project objectives will be affected by these different diameter

caps, both ecologically and economically. We further suggest that these alternatives explore—perhaps with the help of Rocky Mountain Research Station social scientists—the social, political, and historical dimensions of a diameter cap in the context of ponderosa pine forest restoration in the Southwest.

Nowicki

(The following comments were provided by B. Nowicki in a July 18 and a August 16 letter from the SWFA and others (after the comments listed above). The two letters included duplicated information.)

A 16-inch diameter cutting cap is critical. Many sites have been commercially harvested removing a large component of the larger trees from forest structure. Existing large blackjacks will develop into the next generation of old growth. Retaining 16-inch dbh or greater provides some assurance the proposed action would not detriment this forest structure further. A 16-inch cap would not impede any of the treatments meeting the stated objectives.

Implement a 16-inches diameter cutting cap throughout the entire Kachina Village Project. Many of the sites within the project area have been commercially harvested, removing a large component of the larger trees from the forest structure. The existing large blackjack ponderosa pine trees will develop into the next generation of old growth in these areas. Retaining all trees with 16-inches dbh or greater would provide some assurance that the proposed action would not detriment even further those degraded forest structures. In fact, even a 12-inche dbh cutting cap would not impede the treatments from achieving the stated objectives, as a large proportion of the trees in the project are smaller than 12-inches dbh. That is, thinning treatments would be able to create a diversity of stand densities and structures by implementing varying levels of thinning the trees less than 12-inches dbh. This analysis and cutting cap is absolutely necessary to protecting vital components of the current forest structure, and the next generation of old growth that will develop in the forest.

Implement "thinning from below, north of Kelly Canyon" within the 1/8 mile (660 feet) immediately adjacent to homes. Beyond the 1/8 mile, implement a variable "thinning from below" to 60-120 BA north of Kelly Canyon. This combination of treatments acknowledges a distinction between wildland-urban interface treatment and general fuels reduction, and delineates a distinct defensible space in the wildland-urban interface. The 660-foot "Intensive Zone" provides a defensible space in which a crown fire can be forced to the ground, and in which firefighters can safely work. The less intensive treatment beyond 1/8 mile from houses serves as an extensive zone to reduce fire intensity as it approaches the community. The intensive and extensive zone treatments have been used in the Southwest in the past to protect communities from the threat of wildfire, and should be analyzed for use in this project. Such a method reduces the impact on adjacent forest ecosystems while providing community protection.

Furthermore, Forest Service research shows that the homesites themselves and the areas immediately surrounding houses are the largest factors determining whether houses are at risk of burning from forest fires. Therefore, the EIS needs to analyze the effectiveness and necessity of these treatments in conjunction with the current and future treatments implemented on the private property adjacent to the project. The EIS should also explain why there are areas immediately adjacent to the private property boundaries that are not being treated in this project. The project in its proposed form may implement high levels of forest thinning without effectively and efficiently providing wildfire protection for the adjacent communities.

No new roads should be constructed, even if only for the duration of the project as roads greatly increase soil compaction, transport of exotic weeds and long lasting impacts on forest structure. South of Kelly Canyon all thinning should be done by hand, the limitation would not impede any of the treatments from achieving stated objectives.

No new roads should be constructed for this project, even if only for the duration of the project. Roads greatly increase soil compaction, encourage the transport of exotic seeds, and have long-lasting impacts on the forest structure. The entire project area has previously been heavily impacted by recreation, including heavy traffic of ORV's, and should be spared further damage. Also, no area in the project is far enough from roads to require new roads to be built. In areas that are prohibitively far from roads, this may limit the size of trees that can be cut. However, this limitation would not impede any of the treatments from achieving the stated objectives.

Do not drive cat lines through the area. For many of the reasons as listed directly above, cat lines should

not be used in the area. Fire lines should be created by hand if they absolutely necessary.

Use only hand thinning south of Kelly Canyon. The use of hand thinning may limit the size of trees that can be cut in some areas away from roads. However, this limitation would not impede any of the treatments from achieving the stated objectives. Using hand thinning, the project will still be able to create a diversity of forest structures and densities throughout the area, including dense patches within a less dense matrix. Most importantly, the use of hand thinning would minimize the soil impacts, protecting the area from further damage, and maximizing its ability to recover and achieve the proposed objectives of forest health and wildlife habitat.

Use only hand thinning south of Kelly Canyon. One of the objectives mentioned early in the planning process was to manage the area south of Kelly Canyon for wildlife, including designating the area as old growth, existing or recruiting. This area is not near houses or communities and is a critical corridor for turkey and bear as well as generally being important wildlife habitat with the potential to develop good old growth characteristics. Designating the area as old growth would provide some protection for this area of the forest as it develops old-growth structure and function. Furthermore, the EIS should include a comprehensive analysis of old growth at the forest level as well as the project level, as required by the Forest Plan.

The use of hand thinning may limit the size of trees that can be cut in some areas away from roads. However, this limitation would not impede any of the treatments from achieving the stated objectives. Using hand thinning, the project will still be able to create a diversity of forest structures and densities throughout the area, including dense patches within a less dense matrix. Most importantly, the use of hand thinning would minimize the soil impacts, protecting the area from further damage, and maximizing its ability to recover and achieve the proposed objectives of forest health and wildlife habitat.

Nowicki Comment: The following comments were provided by B. Nowicki on 9/20 on the request of Tammy Randall-Parker. Tammy asked Brian several very specific questions to better understand exactly what some of the comments were addressing. I phoned and asked him to come in and visit, he could not. Instead he sent an additional letter, that did address the questions I had put forward to him regarding roads and my interpretation of their recommendations for the project (See PRD 110A). The following is his last e-mail.

> Ms Randall-Parker,
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> I have not been in touch with Taylor, but I hope to speak with him soon regarding the Kachina Village Project. I assume that his lengthy comments are being considered in developing the alternatives.
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> I will attempt to clarify, as succinctly as possible, the SWFA comments you and I spoke about yesterday regarding the Kachina Village Project. These include: the 1/8-mile treatments around communities, 60-120 BA north of Kelly Canyon, temporary roads, and hand thinning south of Kelly Canyon.
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> 1/8-mile WUI treatments:
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> The Forest Service researcher Jack Cohen states that the area immediately adjacent to structures (houses) is the most important determinant of whether or not that house will burn. (Many of his ideas are presented in the SWFA document "Protecting Communities from Forest Fires" that can be found on our website www.swfa.org, although I am sure that you can also access his findings directly through the Forest Service.) The ideas regarding protecting houses fit in with the concept of an intensive zone treatment. In many cases, intensive zone treatments (often a narrow band of 1/8 mile= 660 feet= 200 meters directly adjacent to communities) provide a defensible space for fighting fires as well as providing a shaded fuelbreak in which the fire can drop to the ground. The exact prescription for such an intensive zone would be highly site-dependent, and the district fire and fuels experts would have to determine them on a site-by-site basis. However, the treatment generally requires the removal of ladder fuels and a reduction of fuels loads, as well as eliminating continuous canopy so that only relatively small groups and individuals would be left. "The wildland fuel characteristics beyond the homesite have little if any significance to WUI home fire losses." (Cohen 1999). Therefore, treatment beyond the area immediately adjacent to communities (1/8-mile) should be treated with a general fuel reduction as would be used throughout the wildland forest. Of

course, no WUI treatment is effective unless the personal properties and all homesites are treated. However, used in conjunction with home treatment, the above methods can provide real community protection, while at the same time reducing the need for drastic and extensive thinning beyond the area immediately adjacent to communities.

60-120 BA North of Kelly Canyon:

Thinning to a range of 60-120 sq ft BA should provide all of the benefits that are provided by thinning to a 40-120 sq ft BA, but would provide some protection against unnecessary and overzealous thinning. The negative ecological impacts of reducing a significant portion of the forest to 40 sq ft BA could be severe. It is also my understanding that 40 sq ft BA is lower than is necessary to achieve the desired goals of increased forest health and lowered fire risk. (An analysis of the resulting crown bulk density may be most appropriate for determining the latter.) Of course, this range of BA refers only to forested acres, and not openings and meadows. Also, we would assume that the entire range of 60-120 sq ft BA would be represented, and there would not be a bias toward the low end of the range.

Temporary Road Construction:

The negative ecological impacts of road building may far outweigh the benefits gained from an increased level of thinning. Understandably, the lack of new roads may, in some cases, reduce the size of trees that may be removed from an area, thereby affecting the post-treatment stand density. However, in many cases the resulting difference may be marginal. More importantly, the desired effects of thinning may be only slightly reduced, but the negative effects of roads would be entirely eliminated. In some instances, the district may consider cutting trees even though the logs could not be removed by road. In these cases, the logs may be lopped or bucked and eventually consumed by prescribed fire. Of course, in some cases, such methods would create very high fuel loads for the first prescribed fires. In such cases, the district could consider thinning over a series of years, with a series of prescribed fires. Furthermore, the district should analyze the need for roads in each stand, not just the need for them overall.

Hand-thinning South of Kelly Canyon:

Use of hand-thinning in the area south of Kelly Canyon may restrict the cutting cap to 9"dbh. However, thinning with a 9" cap can achieve the goals of the projects. At the same time, the area will be spared the severe impacts of soil compaction and disturbance by large machines. The costs of such soil impacts may far outweigh the ecological costs of leaving a higher tree density on the site.

SWFA expects the Peaks Ranger District to perform a fair and thorough analysis of these issues. Please do not analyze these issues in such a way as to determine, for example, whether a 9" cap will allow you to reach you goal of 40 BA. Obviously, this is circular reasoning and unfair. Rather, analyze whether a 9" cap will allow you to achieve the goals of fire risk reduction and forest health. Present your findings not by simply saying, for example, that one alternative provides greater fire risk reduction than another. Instead, please present your findings as a quantitative result, such as "Alternative X provides only 80% as much increased tree growth as Alternative Y", or "Alternative X will carry a continuous crown fire at 50 mph, whereas Alternative Y will carry one at 60 mph". Presenting the findings as such will allow us to consider the proportional difference in benefits compared to the differences in treatment and collateral damage (such as roads).

Thank you very much for considering these ideas. Please feel free to call me if you have any further questions.

Brian Nowicki

Non-Issues Comments and Questions

These items did not meet the definition for an issue defined as a **dispute or disagreement** with the **Proposed Action** based on some **anticipated environmental effect**.

Bird (April – NOI response)

We intend this letter to be an expression of our interest in the Kachina Timber Sale. Our organiza-

tions, FCC and NFPA would like to raise several issues concerning the project that should be addressed in subsequent environmental documentation.

Non-Issue: *It is stated there are issues, but no anticipated affects identified.*

Response: *The project is not a timber sale. In the future, reference this project as the Kachina Village Forest Health Project. This project has not been planned as a timber sale, note that "timber production" is not listed in the purpose and need section of the Proposed Action.*

Bird (April – Response to NOI)

The systematic application of an unproven silvicultural restoration technique being applied to thousands of acres around Flagstaff and requires a programmatic EIS (PEIS) remains a grave concern of our organizations. During the Ft. Valley NEPA and legal proceedings, the Forest Service argued that a PEIS and a legally compliant cumulative effects analysis were not necessary because the experimental nature of the various treatments in Fort Valley precluded knowledge of what types of actions might be applied to remaining 90K+/- acres remaining in the Flagstaff area. Despite its assurances, the Forest Service is proposing to employ one or more of the Ft. Valley-type activities in the Kachina 10K! It is plainly time for the Forest Service to concede that it has well-defined plans for 100 thousand acres surrounding Flagstaff and to proceed with a PEIS and the appropriate cumulative effect analysis.

Non-Issue: *This comment poses no dispute or disagreement with the Proposed Action, rather there is a disagreement with the Fort Valley Project. No anticipated effects are directed at the Proposed Action.*

Response: *Your request for a Programmatic Environmental Assessment and subsequent description of this is unsubstantiated by factual information. Nowhere in the Fort Valley Project Record File have your organizations ever mentioned a request for a PEIS. There is no mention of a PEIS anywhere in the CFR regulations or FS manual direction. There is no such thing as a PEIS, so we are having difficulty understanding this request.*

Legal proceedings on Fort Valley had nothing to do with a PEIS or cumulative effects; the legal proceedings focused on a process related issue that your groups brought forward. The process issue centered on a comment period for the EA for Fort Valley.

The Kachina Village Forest Health Project will be conducted according to all Federal regulations at stated in the CFR's as we proceed with NEPA on this project. The Kachina Village Forest Health Project is a site-specific project for an area south of Kachina Village. Site-specific projects as required by NEPA require the preparation of a CE, EA or EIS. The Coconino National Forest Land Management Plan and subsequent amendment will guide this project. Cumulative effects for ongoing, past and foreseeable future projects will be analyzed.

Bird (April – Response to NOI)

The question of uncertainty and the principle of adaptive management is still at the forefront of the controversy surrounding the GCFP/Forest Service approach to forest restoration. The FS and GCFP have adamantly insisted the nature of the thinning is experimental in nature, thus accurate prediction of effects cannot be made, and no future timber sales would go forward until scientific information validating one or another of treatments becomes available. More large-scale restoration timber sales such as Kachina is exactly what our organizations warned of Ft. Valley. The actions at Fort Valley have not even commenced in full and planning for another 10K has started. Such blatant failure to stand by the principles of adaptive management is exactly what has eroded the public's faith in the FS.

Non-Issue: *There is a dispute with the Fort Valley Project, but no disagreement with the proposed action. There are no anticipated effects stated by the respondent with the Proposed Action.*

Response: *The project is not a timber sale. The FS has not adamantly insisted the nature of the thinning is experimental in nature and has not stated we could not make accurate effects analysis. The FS has never stated future projects would not be analyzed while we wait for research data collected at Fort Valley. We are pleased to see the Fort Valley Project move forward and we will learn new information from the project. There are no experimental treatments proposed for Kachina Village; all silvicultural treatments have been proposed in the past and studied and fall within parameters of the Forest Plan. The thinning south of Kelly Canyon with the deferment patches is a "new approach" to a straight thinning from below with the deferral patches maintained for wildlife. Arizona Game and Fish biologists have worked with the IDT in the design of this treatment and are anxious to see it applied on the ground. In fact we have received three letters from the Arizona Game and Fish Department in support of the treatment and overall design of this project.*

Bird (April – Response to NOI)

The structural model applied at Ft. Valley and we assume the GCFP is attempting to blindly apply again to public forest is fraught with uncertainty and has not produced information, other than anecdotal support of silvicultural goals. The Covington model is based on structural attributes of ponderosa pine forests and supporting evidence consists of research on residual tree characteristics, ie. dbh, growth related variable. This is not appropriate for our Federal public forestlands, which are important ecological concentrations for TES species population trends and habitat occupancy, hydrological processes, soils, etc.

Non-Issue: *There is no disagreement or dispute related to the Proposed Action and there are no anticipated effects stated with the Proposed Action. Rather, the respondent has issues with the Ft. Valley Project and the Covington model of restoration.*

Response: *The Kachina Village Forest Health Project Proposed Action does not include any Covington model restoration type prescriptions and is working with existing structure.*

Bird (April –Response to NOI)

The FS during Fort Valley was criticized for using selective science or ignoring critical science that pointed to the uncertainties involved in silviculture-bases restoration and fuels management. The new National Forest Management Act planning regulations became effective on November 9, 2000. The regulations mandate that the restoration and maintenance of ecological sustainability is the "first priority for stewardship of the national forests." (36 C.F.R. 219). The FS is now required to ensure "that the best available science is considered in planning." In particular, the requirement to consider the best available science applies immediately to all project decisions implementing current forest plans. FS must refer to all of literature and science available. There is little to no empirical evidence that the proposed activities reduce fire risk or behavior and in fact, the evidence would lead to the opposite conclusion that commercial timbering and thinning actually will increase the immediate risk of stand-replacing fire or unnatural fire conditions and old growth structure and process. In the recent Science Consistency Check for the Sierra Nevada Forest Plan Amendment, the science team repeatedly makes this point. (Final Report from the Science Consistency Check Team on the Carson Nevada Forest Plan Amendment, 2000). Creating large trees is a silvicultural goal, not a purely ecological goal: big trees alone do not ensure old growth conditions and processes.

Non-Issue*: There is no dispute or disagreement with the Proposed Action and there are no anticipated affects stated with the Proposed Action.*

Response: *The new planning regulations will not be used for this analysis as these regulations are on hold at this time. Our IDT will use all existing information available and scientific information to conduct the best effects analysis possible.*

Bird (April – Response to NOI)

The FS must justify the application of potentially harmful actions across 9,000 acres of Federal forest lands rather than focusing its efforts on reducing the immediate risk to property and lives in the WUI and a property owner education and cooperation program. Congress has not approved widespread timber sales miles from the WUI. The Coconino National Forest nor the GCFP has defined the WUI. The Kachina EIS must offer legitimate justification for applying silviculturual treatments to thousand of acres of remote forestlands outside the WUI. Is this cost effective? What the short and long-term ecological implications? What are the short and long-term costs for maintaining the 10K landscape in the "desired" condition?

Non Issue*: This comment is not specific to the Proposed Action, however there are several comments which are addressed as follows.*

Response: *For the City of Flagstaff and surrounding satellite communities, the Forest Service has had a definition of the wildland-urban interface in the Coconino Land Management Plan and a map of the interface that has been in use for years. The Fire Management Area Zone (FMAZ) map shows that all but a small area south of James Canyon are within the W/UI. In the Coconino LMP there is guidance on the size and scale of the urban interface found on page 93, the Plan states "the urban interface is defined as an area up to 10 miles long in a south-westerly direction from urban areas."*

Fire managers in Flagstaff have defined the WUI as the points from which a fire originating under average worst case conditions that would be likely to reach structures within one or two burning periods. For example, a fire that started near the junction of Highway 89 and Forest Service Road 237 could easily travel the approximately 3 miles to the south

end of Kachina Village within one burning period. A fire in this area (as shown with Farsite Modeling PRD 73) will travel 2.5 to 3 miles in one afternoon, thereby prompting us to look at the entire area in order to protect homes in Forest Highlands and Kachina Village. This type of fire would likely overwhelm initial attack firefighters.

Further, this project proposal is not just a WUI proposal. It is clearly stated in the Proposed Action as a project to improve declining forest health and high fire hazard conditions. MSO PAC's, old-growth habitats, old trees, northern goshawk habitat, cultural sites, and the Oak Creek watershed are at risk from wildfire and management actions are proposed to reduce wildfire risk and potential.

The questions described in this comment will be addressed in the EIS. A cumulative effects analysis will be prepared. FSH indicates that economics are not important drivers in this project. Commodity production is not the driving factor in this project; forest health improvement is. Therefore, cost effectiveness is not the prime question here. "For purposes of complying with the (National Environmental Policy) Act, the weighing of merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations. (Emphasis added) (FSH 1909.15 41.1(2); FSH 1909.15 22.35; 40 CFR 1502.23. FSM 1905-55 defines "net public benefits" as "an expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index." This definition is consistent with the direction of complying with NEPA.

Bird (April – Response to NOI)

We are concerned with the adverse economic effects of commercial logging, including silviculture-based restoration on public lands and the damage and loss of ecosystem service values associated with standing or otherwise intact forests. The FS failure to quantify such effects at the project level or for the logging program as a whole is contrary to many Federal and USFS regulations. The opportunity costs of logging, which include the values, of uses forgone on areas logged plus the benefits associated with alternative uses of timber sale funds should be evaluated on a project basis. We request an impartial analysis of all values, both market and not-market associated with each alternative including the non-action and no commercial harvest alternatives. This includes employment and income (including multipliers) associated with non-timber uses.

Non-Issue: *There is disagreement expressed with the Forest Service in general, but no disagreement with the Proposed Action and no anticipated affects stated with the Proposed Action.*

Response: *The Forest Service will conduct an economic evaluation of the alternatives in the Draft EIS. An economic analysis will comply with manual direction for this item.*

Bird (April – Response to NOI)

The analysis needs to include an indepth treatment of cumulative effects, especially in regards to soils, water quality, fragmentation, old growth, TES, MIS and neotropical migrant birds. All activities including past, present, and reasonably foreseeable future activities, including the application of silvicultural restoration treatments to 100K acres in the Flagstaff area, on each and every land ownership must be incorporated. This is important considering the fact that the FS is ignoring its promises to not apply these experimental treatments until information about their effectiveness can be obtained from other areas and the obvious intentions of the FS to apply these treatments to many 10K units as quickly as possible.

Non-Issue: *There is no disagreement stated with the Proposed Action and no anticipated effects stated with actions for the Proposed Action.*

Response: *The Draft EIS for the Kachina Village Forest Health Project will include a cumulative effects analysis as directed by Federal regulations which includes ongoing, past and foreseeable future projects (as defined as a project with a proposed action).*

Bird

Statement concerning prioritization of implementation "by treating stands adjacent to communities first, and then progressing south thereafter" makes no sense and seems to pay lip service to the national direction and science on WUI forest treatments and places no concrete limitation on the project.

Non-Issue*: No stated specific effect.*

Response: *As the treatments are implemented within the project area, the treatments north of Kelly Canyon will come first. The areas closest to the*

urban interface were prioritized, as first to complete important work needed in the highest fire risk areas. Treatments proposed south of Kelly Canyon will begin after the north half is complete. Fire occurrence data shows areas north of Kelly Canyon to have more frequent human starts with higher use occurring north of Kelly Canyon.

Denton

Large dense stands will continue to maintain a threat of disturbance events including stand replacement, fire, insects, disease and drought.

Non-Issue: *No disagreement with the Proposed Action.*

Response: *A phone call to Charlie Denton was made to clarify this issue. Charlie is not concerned with the Proposed Action, if deferral patches remain as stated in the Proposed Action which is 1/10th to 1 acre. However, there would be concerns if deferral patches become larger than 2 acres in size or there are additional leave areas proposed, say more than the 25 percent described in the Proposed Action. We have a concern with leaving large dense areas as well and have brought forward a Proposed Action which will not leave large dense areas susceptible to fire, insects and disease.*

Denton

The proposed actions do not bring the ecosystem within the range of evolutionary (natural) variability, which is needed to allow natural fire to play a role.

Non-Issue: *No specific disagreement with the Proposed Action.*

Response: *This is not an issue with Charlie per phone call. He does not believe natural fire should be included in the Proposed Action, which it is not. Charlie has concerns with smoke management and social acceptance, and is not supportive of the use of "natural fire" in the urban interface. He also believes the dense patches would affect our ability to use natural fire in the area.*

The objective to allow natural fire to play a role in this area is beyond the scope of this project. The Forest Service IDT and public participants discussed this as a possible objective for the project, however this was dropped for several reasons including public acceptance, smoke management concerns, etc.

Denton

No actions are described which increase the diversity of age classes.

Non-Issue: *No specific disagreement with the Proposed Action.*

Response: *Per the phone call, Charlie stated we cannot change the diversity of age classes—and does not think this should be part of purpose and need. He agrees we are improving and increasing the diversity of diameter classes. Charlie is not advocating for regeneration treatments, and is concerned about increasing the number of small trees as this would affect fire potential. He stated we need to followup with future broadcast burning to thin regeneration areas that will result from our thinning. We agree with Charlie that future broadcast burns and maintenance burning is essential to managing regeneration in the area.*

Denton

The understory productivity and diversity will only respond in those areas where significant overstory and understory thinning occurs.

Non-Issue: *No dispute stated or disagreement with the Proposed Action.*

Response: *The Forest Service is aware of research and studies which document the effects of understory response to stand density The changes in understory development will be described in the EIS.*

Denton

Smoke management will be a restrictive item adjacent to the interface property.

Non-Issue*: No dispute stated or disagreement with the Proposed Action.*

Response: *True statement; no disagreement from the team.*

Pond

The Highlands Fire Department thanks the Forest Service and Partnership for excellent work on the project. Appreciate participation in the initial planning. In favor of efforts (thinning, burning) and other efforts to reduce the potential for large fires in the Wildland Urban Interface. We would like to remain active in the processes of this project and we are willing to serve as a community source of information regarding this project.

***Non-Issue**: No dispute or disagreement with the Proposed Action.*

***Response:** The USFS intends to further communication and informational meetings with residents and local groups concerned with the project, and will continue to include and seek assistance from the fire department.*

Pond

The Highlands Fire District would like to see the project implemented sooner than the stated 5 to 10-year schedule.

***Non-Issue**: There is a dispute with the Proposed Action, but no anticipated effects are stated by the respondent.*

***Response:** This is our best estimate for the timeline for this project. We expect that the thinning could be completed over a 3 to 4-year period. Broadcast burning would follow and will most likely take 10 years to complete all acres. In subsequent years maintenance burning will occur. This is based on past experience in managing airshed regulations, weather conditions, etc. The project will start adjacent to Kachina Village and Forest Highlands.*

Nowicki

It is my understanding the GCFP has adopted a 16-inch dbh cutting cap; the GCFP decided that any tree cut over 16 incheswould be left on site as a snag or log. However, neither made it into the Proposed Action.

***Non-Issue**: No dispute or disagreement with the Proposed Action, and no anticipated effects identified. Comments merely raise questions that can be answered now.*

***Response:** The GCFP has not adopted a 16-inch dbh cutting cap, but makes recommendations to the Forest Service on a case-by-case basis regarding a cap. The GCFP did not recommend a 16-inch cutting cap for this project but did recommend that any 16 inch tree that was targeted for removal to meet project objectives be retained on site. This was killing the tree to create a snag or felling it to become a log. The Forest Service proposed action includes creation of logs and snags. See Page 2 (Item 2) and Page 7 (Item 17) in the Kachina Village Forest Health Project Scoping Letter.*

Nowicki

If recommendations were indeed submitted by the Partnership but not accepted by the Forest Service, then this calls into serious question the reinvention laboratory status of the Grand Canyon Forests Partnership projects.

***Non-Issue:** No disagreement or dispute with the Proposed Action.*

***Response:** The Forest Service is responsible for the NEPA process, including the decision. The Partnership provides recommendations and works with the Forest Service just like all other publics can provide comment. This does not question the reinvention laboratory status of the project.*

Nowicki

The Kachina Village project should retain all trees older than 100 years to protect trees that were alive at the turn of the last century, prior to the majority of logging and grazing and before the regeneration boom of 1910.

Nowicki and Bird

The proposal poses to cut trees as much as 150 years old. This age appears to be completely arbitrary.

Nowicki Clarification Comments

Perform a field analysis of tree age to diameter for ponderosa pines, and retain all ponderosa pines older than 100 years old. This would protect trees that were alive at the turn of the last century, prior to the majority of logging and grazing, and before the regeneration boom of the late 1910's. The age limit of 150 years that is noted in the Proposed Action is arbitrary and older than all age limits used previously in the Flagstaff area. The EIS needs to include a detailed, quantitative analysis for choosing the age limit of 150 years. Of course, the retention of all ponderosa pines older than 100 years does not imply in any way that all trees younger than 100 years would be cut. This analysis and protection is absolutely necessary to protecting the next generation of old growth that will develop in the forest.

***Non-Issue** (Previous three comments): No clear disagreement expressed with the Proposed Action, no effects identified relative to the proposal; comment raises a question that can be answered now.*

Response: *Our intent is to protect all old trees in the Proposed action. Old trees are those which are "yellow-barked" and are important for wildlife species (over 80 species of wildlife use them for nesting, roosting, and feeding). The Kachina Village Forest Health Project Proposed Action states "retain all existing mature ponderosa pine trees or old 'yellow-barked' trees that are approximately 150 years old or older." The 150-year-old descriptive is merely meant to help explain "yellow-barked trees" and not meant as any management intent. Our intent is exactly the opposite—to thin from below and remove mostly smaller, younger blackjack pine as needed to meet density objectives and leave the larger, mature (yellow-barked) trees. The 150 years number actually comes from a publication by Will Moir and Jack Dieterich ("Old-Growth Ponderosa Pine from Succession In Pine-Bunchgrass Forests In Arizona and New Mexico") published in the Natural Areas Journal, Volume 8 (1), 1988 in which they define yellow pine as: "trees > 30 cm dbh but generally more than 150 years old (age at dbh)." Our personal experience suggests that the age of yellow pines can be quite variable, as few as 130 years up to 180 years or more, depending on site and density conditions, however the age is irrelevant. We are not cutting any yellow-barked trees.*

Nowicki

The Proposed Action confuses the distinction between WUI treatments and general fuels reduction. It does not delineate a distinct defensible space in the WUI, and forest areas directly adjacent to Forest Highlands and Kachina Village are not being treated for fuels reduction. The project relies on fuels treatments over a large area to provide community protection. This approach is leading to confused objectives throughout wildland forest. The SWFA endorses WUI treatments within a 660-foot WUI intensive zone (directly adjacent) to houses. South of Kelly Canyon treatments should only remove understory trees 12 inches and less to protect existing yellow pines.

Non-Issue*: No clear disagreement with the Proposed Action; the respondent finds the Proposed Action confusing. The statements bring forward no anticipated effects relative to the proposal. The comment raises questions which can be addressed now.*

Response: *The Proposed Action describes management actions to address declining, poor forest health, and high fire hazard conditions on national norest nands. Our objectives are not confused, the purpose and need section of the Proposed Action clearly defines our objectives for this project, with WUI protection being only one of fourteen objectives for the project. All lands adjacent to Forest Highlands and Kachina Village that are in need of treatment to address declining forest health and reduce high fire hazard are proposed for treatment. A fire in this area (as shown with Farsite Modeling PRD 73) will easily travel 2.5 to 3 miles in one afternoon, thereby prompting us to look at the entire area in order to protect MSO PAC's, old-growth habitats, old trees, northern goshawk habitat, cultural sites, the Oak Creek watershed and homes in Forest Highlands and Kachina Village. Direction in the Coconino LMP provides guidance on the size and scale of the urban interface. Page 93 of the Coconino LMP defines the urban interface as an area up to 10 miles long in a southwesterly direction from urban areas. Lyle Laverty (Title), as well as many other Forest Service fire specialists, believe wildland fire treatment to go far beyond the 660 feet as expressed in your comments (PRD 91B).*

Nowicki and Bird

Proposed thinning prescriptions are vague; various items are listed to be included in the EIS. Impacts are vague.

Non-Issue*: No disagreement with the Proposed Action stated and no anticipated effects provided by respondent.*

Response: *There are no impacts stated in the Proposed Action. The EIS and biological assessment and evaluation will include additional detail and effects analysis.*

Nowicki

Areas South of Kelly Canyon should be designated as old growth—existing and recruitment for wildlife habitat. The EIS needs to include a comprehensive analysis of old growth at the forest level, project level as required by the Forest Plan.

Nowicki Clarification Letter

One of the objectives mentioned early in the planning process was to manage the area south of Kelly Canyon for wildlife, including designating the area as old growth, existing or recruiting. This area is not near houses or communities and is a critical corridor for turkey and bear as well as generally being important wildlife habitat with the potential to develop good, old-growth characteristics. Designating the area as old growth would provide some protection for this area of the forest as it develops old-growth structure and function.

***Non-Issue**: No disagreement or dispute with the Proposed Action based on anticipated effects.*

***Response:** Effects on old growth and appropriate designations will be disclosed in the Draft EIS.*

Nowicki Clarification Letter

Provide a definition of "opening," including the criteria used to determine the location, size and number of openings. The EIS needs to provide clarification on the determination of openings. For example, if the project includes recreating historic openings, specify whether these are areas that have at any point in time been openings, or if they were openings prior to 1900 or some other criteria. One concern is that areas that were opened in the past by logging will be considered historic openings. Another concern is that areas that were historically more open (had very low tree densities) may have still contained some trees (trees scattered within openings). The EIS should include a justification for the management of 10 percent of the area to provide for grassy openings in the "thinning from below, north of Kelly Canyon." Is this an attempt to implement the Goshawk Guidelines throughout the area? Primarily, this analysis should determine the "historic" level of openings, by number, size, and locations. Without this clarification and analysis of the openings, the project is in danger of arbitrarily creating holes in the forest structure, with little understanding of the impact and long-term effects of such action. Furthermore, the EIS should include a quantitative analysis of the impact of the created openings. This includes analyses of the number of trees removed by diameter class, and the pre-treatment densities of those areas in which openings will be created, as well as an analysis of the number and size of openings by treatment.

***Non-Issue:** The respondent does not state a clear debate or disagreement with the Proposed Action,but rather asks questions which can be addressed at this time.*

***Response:** As stated in the Proposed Action, the selection of areas for creating grassy openings will be a combination of building on existing openings and looking at historic openings. These openings will implement the goshawk guidelines and provide gaps in the canopy to lessen crown fire potential. The Proposed Action specifies we will work to create 10 percent grassy openings in the project area. The respondent provides no anticipated environmental effects of concern for creating the openings. The need for grassy openings is well documented in the Management Recommendations in the Southwestern United States for the Northern Goshawk, Reynolds et.al. Our Forest Plan has standards and guidelines for creating grassy openings on the landscape. There is no rationale provided by the respondent for the data he requests. In my phone conversations with Brian, I mentioned the need for removal of large diameter black jacks to make grassy openings. The 1919 seed year deposited seeds in existing over-grazed small meadows. The trees which established in some of the meadows tend to be large diameter, short in height and have many limbs with abundant needle cover (full canopy). The tree form growing in many historic openings are affecting understory ground cover by shading out the understory.*

Nowicki Clarification Letter

These and the previous comments are specific to the Kachina Village Project and are not template in form. The comments were submitted in a good faith attempt to convey our concerns, issues, and objections concerning the Kachina Village Project to the Forest Service, as early as possible in the NEPA process.

We submit these comments as substantive issues to be analyzed and included within alternatives in the EIS. These clarifications follow the comments of Ms Randall-Parker at the August Grand Canyon Forests Partnership meeting, in which she stated that no substantive issues were raised in the comments so far. If the Forest Service maintains this position, please provide a citation to a provision within the NEPA, its CEQ implementing regulations, the Forest Service Manual or Handbook, or any other law or policy in support of this position.

Regardless of which issues within our scoping letter are deemed "significant" by the Forest Service, the agency is required to provide a response to our comments. See 40 C.F.R. § 1503.4. Additionally, implementing regulations at 40 C.F.R. § 1501.7 requires that even those issues not found to be significant must be identified and for the action agency to give a "brief presentation of why they will not have a significant effect on the human environment or providing a reference to their coverage elsewhere." Finally, in general, NEPA requires agencies to "make diligent efforts to involve the public in preparing and implementing their NEPA procedures." See 40 C.F.R. § 1506.6.

***Non-Issue:** No dispute with the Proposed Action or anticipated effects. The respondent is concerned about how their scoping comments will be addressed.*

Response: *All scoping comments have been addressed in the scoping comment summary which lists all substantive scoping comments and links each comment to its source. The scoping comment summary compiles all comments into categories: Issues; Non-Issue Comments and Questions; and Alternatives Suggested by the Public. In the scoping comment summary, all comments are addressed with a response. A definition for comments and issues is provided in the summary. The list provides transition from public scoping to the issue management phase of NEPA. A document summarizing issues and non-significant issues has been prepared. This document addresses all issues with a response as well. All of the comments, issues and alternatives suggested by this respondent have been addressed and considered by the IDT and most importantly have been reviewed by the line officer who will make this decision.*

Kennedy

The AZG&F Department supports the Forest Service management emphasis and focus on forest restoration and reducing risk of uncontrolled wildfires, and request direct involvement through Rick Miller to ensure wildlife goals and objectives are met.

Non-Issue*: No disagreement or dispute with the Proposed Action.*

Kennedy

We would like to work cooperatively with the Forest Service and GCFP to discuss possible development of pre- and post project-monitoring actions to collect information that could be used during the development of future forest health projects.

Non-Issue: *No disagreement or dispute with the Proposed Action.*

Response: *Continue to coordinate with AZG&F personnel on the project. Have draft EIS include potential preliminary research and monitoring.*

Dodd

Pleased to see Proposed Action is encouraging research and monitoring. Priority for evaluation is the two prominent treatments north of Kelly Canyon and south of Kelly Canyon. Needs 2+ years pretreatment and 2+ years post treatment.

Non-Issue*: No dispute with the Proposed Action.*

Response: *Send letter to Dodd and others to have working meeting to discuss the research. Work with AZG&F on potential funding. Include Carl Edminster and Diane Vosick of ERI & B. Cottam.*

Metzner

Thinning around housing makes sense, but should extend no more than 1/2 mile in any direction.

Non-Issue*: There is a dispute with the Proposed Action, however, no effects anticipated are described by the respondent.*

Response: *A fire in this area (as shown with Farsite Modeling PRD 73) will easily travel 2.5 to 3 miles in one afternoon, thereby prompting us to look at the entire area in order to protect MSO PAC's, old-growth habitats, old trees, northern goshawk habitat, cultural sites,the Oak Creek watershed and homes in Forest Highlands and Kachina Village. Direction in the Coconino LMP provides guidance on the size and scale of the urban interface. Page 93 of the Coconino LMP defines the urban interface as an area up to 10 miles long in a southwesterly direction from urban areas. Lyle Laverty (Title), as well as many other Forest Service fire specialists believe wildland fire treatment to go far beyond the 1/2 mile as expressed in your comments (PRD 91b).*

Metzner

If Kachina Village wants these kinds of changes in our forest, we will request it.

Non-Issue*: There is an overall dispute with bringing forward a proposal for the area, but no anticipated effects expressed.*

Response: *Many in the Kachina Village area have expressed support for the types of activities brought forward in the Proposed Action and requested these types of changes as we have heard when working on other projects such as the Lake Mary Ecosystem Management Assessment and during the open house for this project.*

Bird

FCC and NFPA remain gravely concerned that the FS continues to ignore own science, controversy of forest restoration logging and cumulative effects.

Non-Issue*: There is no clear dispute with the Proposed Action and there are no anticipated effects described.*

Bird

The Kachina Timber Sale will "encourage research and monitoring" is confusing. All of the topics or "research studies" are already being studied at Fort Valley. Wait for the results from Fort Valley before you rush headlong into another controversial and experimental restoration logging project. Agency should proceed with far greater humility.

Non-Issue: *There is clarification that is needed for the respondent. There is no clear disagreement with this Proposed Action and there are no anticipated effects provided.*

Response: *This project is not a timber sale. The treatments proposed for Kachina Village are being applied differently than those at Fort Valley and some are different than other treatments we have proposed for other projects. However, all treatments fall within the parameters of the Coconino National Forest Plan. The treatments south of Kelly Canyon, which will include the deferment areas intermixed within treatments, have not had any type of intensive wildlife study. The AZ Game and Fish Research Branch is very interested in looking at how these typeof treatments will affect Abert squirrel, songbirds and mule deer. Also, there is interest from MSO researchers to include the MSO PAC(s) within the project area as part of a regional review of the application of treatments described in the recovery plan for this species. Fort Valley did not include any thinning or prescribed burning in MSO PAC's.*

Bird

Kachina Timber Sale DEIS must comply with the 1996 LRMP amendments including providing old growth assessments at three spatial levels.

Non-Issue: *There is no dispute or disagreement with the Proposed Action.*

Response: *This Environmental Impact Statement and Project Record will have information that documents compliance with the Coconino LMP and amendments.*

McKinnon and Ack

Mechanical piling and burning piles may be ideal from a fire management perspective but it is not proven as the best alternative for ecological restoration. This approach to slash can have significant impacts on the ground. ***We believe the USFS should look at having different zones for slash management, and utilize the lop and scatter technique wherever possible,*** especially in the parts of the project area distant from structures, such as south of Kelly Canyon.

Non-Issue*: There is a dispute with the Proposed Action but no description of the anticipated effects.*

Response: *Most of the area will be rough piled with some material retained as stated in the Proposed Action. The amount of slash generated from the proposed treatments would not allow for lop and scatter only. Our experience from recent thinning activities at both the A1 and Fort Valley Ecosystem Restoration Projects have demonstrated that the slash produced will require piling. Fuels specialists have made recommendations for slash treatment that are conducive to the amount of slash created and concerns with red slash in the urban interface.*

McKinnon and Ack

We enthusiastically support the Kachina Village Project and appreciate the time and energy you and other Coconino National Forest staff have dedicated toward this project to date. In addition to comments made by the Grand Canyon Forests Partnership, we are providing the following comments that we feel could help to clarify and improve the Proposed Action for Kachina Village.

Non-Issue: *There is no dispute or disagreement with the Proposed Action.*

Response: *Thank you for your support.*

McKinnon and Ack

While this section is at the end of the document, we feel it should be the first section in a draft EIS. It is important to immediately explain "why" to the reader. We support all the statements in this section, but we are curious why the term "restoration" does not appear here or in the remainder of the document. For the Kachina project, it seems that "improving forest health" has replaced "restoring forest ecosystems" or "ecological restoration" throughout the Proposed Action.

We would like you to consider changing the name of the project to "Kachina Village Ecosystem Restoration Project," making it analogous to Fort Valley. This would also better reflect the reality of the Grand Canyon Forests Partnership as stated in the Cooperative Agreement (1998) and Guide to the Grand Canyon Forests Partnership (1998).

We also recommend replacing the #14 in purpose and need with the original language from the Guide to the Grand Canyon Forests Partnership: "Research, test, develop, and demonstrate key ecological, economic, and social dimensions of restoration efforts."

Non-Issue: *This comment has brought forward suggestions for language changes to the Proposed Action. There are, however, no anticipated environmental effects.*

Response: *The suggested language changes have been noted.*

McKinnon and Ack

In order to more accurately communicate our collective intention to retain all yellow pines in this project; and to reduce the probability that our collective efforts could be misconstrued or misunderstood, we suggest that the statement mentioning retention of trees greater than 150 years old be changed to simply state that "all yellow pines will be retained."

Non-Issue: *There is a debate with the Proposed Action regarding wording, however, there is no anticipated affect.*

Response: *The age of 150 years was a descriptive term only. This clarification will be made in the EIS.*

Mckinnon and Ack

In addition to those research institutions mentioned in the proposed action, we encourage the Forest Service to include a monitoring plan in the scope of work for this project.

Non-Issue: *There is no dispute or disagreement with the Proposed Action.*

Response: *A monitoring and implementation plan will be included in the Draft EIS.*

McKinnon and Ack

Project maps indicate that within units to be thinned, all acreage has been included for thinning targets. Based upon the experience at Ft. Valley, where thinning targets exceeded actual thinned acres, we recommend that the Forest Service reduce acres treated in each unit by a percentage in order to accommodate subsequent deferrals that are identified, or to accommodate not thinning in areas where no thinning is needed to meet project objectives.

Non-Issue: *There is no stated disagreement with the Proposed Action and no anticipated effects identified.*

Response: *This comment reflects a concern that acreages show deferral acres. The EIS will include accurate acreages.*

McKinnon and Ack

See comment #6. If thinning is proposed in areas that have been thinned in the last 10 years, the Proposed Action should identify and discuss these. Where the proposed action states that "clumps will be selected based on existing structure," it would be useful to explain this further. We recommend the following: "clumps will be selected based on the best existing structures. This includes retaining those clumps with the most and largest trees and those that have a well developed and intact group canopy structure first."

Also, the Proposed Action is unclear as to how large or small of an area over which basal area targets are to be averaged. Without this information, the capacity to actually work from the existing structure is unclear. If these targets are point specific, they will be unattainable in many cases. We recommend including minimum acreage value that adds clarity to the basal area targets.

Non-Issue: *There is no clear dispute with the Proposed Action and no anticipated affects are identified.*

Response: *The historical thinning in the area will be considered in a cumulative effects analysis. The leave clumps as stated in the Proposed Action will range in size from 1/10th acre to 1 acre. The range in size of patches thinned to different basal areas will be variable dependent upon existing stand structure and based on experience working with thinning below prescriptions pockets of thinning will vary between 1/10th to 4 acres.*

McKinnon and Ack

See comment number 6. We applaud the idea of retaining a percentage in dense groups based upon the best tree groups that exist on the landscape today. We think the description of how these areas will be identified, and how much of the total thinned area will be retained in these groups could be clarified. Rather than using the term "up to 25 percent of the area," we recommend—for specificity sake—that a range of percentage of area be identified to be left in dense groups. We recommend this range to be 15 to 25 percent of the thinned matrix.

Following are guidelines for your consideration in how these dense patches may be identified:

Identifying and deferring some patches from thinning treatment would (1) prevent unnecessary thinning applications, (2) minimize short-term disturbance during implementation, (3) maintain patches of undisturbed soil, (4) maintain patches of undisturbed canopy for dense canopy dependent species such as Abert squirrel and passerine birds and (5) reduce overall visual impacts (screening) of thinning across the entire treatment area.

It should be noted that there is considerable uncertainty about how deferral patches should be retained. Because communities are composed of different complexes of species that respond to patch size, configuration, and shape in different ways, it seems unlikely that any single set of general, theoretically derived principles would successfully predict the "best" management strategy for a particular set of circumstances (McCoy 1982, Haila 1985, 1986, Zimmerman and Bierregaard 1986). However considering that our conservation needs are immediate, and the research needed to aptly and precisely inform the management of habitat patches is largely speculative in a disturbance matrix, the general principles of restoration ecology provide a valuable framework for reaching these decisions: The general guidelines below employ existing forest structure ("deferred") according to the natural range of variability and deferral guidelines developed for similar projects.

The "patch" defined: In this case, "patch" is synonymous with "clump" as it describes a localized and distinct aggregation of ponderosa pine trees with frequently interlocking crowns and some age and/or size variation.

Patch size: Defining optimal patch sizes for deferral based upon species' needs would be an infinitely complex and under-informed undertaking. Deferral patch size would be most easily determined by identifying distinct tree groups meeting established criteria (see below): the size of individual distinct tree groups would dictate patch size. However, deferral patch sizes should be emphasized (but not confined) to occur within the range of natural variability, generally between .05 and 2 acres (Grieg-Smith 1952, White 1985), and using existing group structures on the landscape to guide size.

Patch configuration: Like patch size, determining patch configuration (arrangement/juxtaposition) across treatment areas according to species' needs would be an infinitely complex undertaking. Belsky et.al. (1995) recommend deferring both isolated patches and large aggregations of patches (totaling up to 5 acres) across thinning projects in "eastside" ponderosa and jeffery pine forest ecosystems of the northwest. This would be a useful and applicable guideline for our project.

Total area deferred: Belsky et.al. further recommend retaining at least 20% or more of an area considered for treatment in an unthinned condition. Retention of some dense areas provides important structural diversity, wildlife cover, and undisturbed soil/ understory conditions within managed stands. This would also be a useful and applicable guideline for our project.

Deferral patches and catastrophic fire risk reduction: The proposed deferral patch guidelines maintain a discontinuous canopy structure across the landscape. While localized intra-patch biomass may be greater in deferred patches, the ability of the overall treatment area to carry a continuous crown fire would probably not be significantly increased.

Criteria for identifying deferral patches: It would be desirable if wildlife biologists identified deferral patches on the ground based upon their professional assessments of the presence of attributes generally favorable to canopy dependent, short ranging species:

Intra-patch considerations:

- presence of important structural components including interlocking crowns and branches;
- physiognomic complexity such as broken tops, brooms or oaks;

- distinct (to minimize the amount of thinning required in adjacent/near deferral patch);
- foliage height diversity; a diversity of sizes of trees within patch;
- lack of excessive ladder fuels that would create dangerous conditions during the re-introduction of fire; and
- patch size is determined by the existing spatial distribution of a distinct tree clump, emphasis on .05-2 acre deferral patches is recommended but should not be absolute.

Inter-patch considerations:

- different dominant tree size classes between patches, favoring later seral stages or larger average tree sizes in patch selection;
- retain a variety of patch sizes and shapes; and
- retain both isolated patches and aggregations of patches up to 5 acres in size.

In the remaining matrix outside these dense groups, we recommend discussing how thinning strategies are aimed at achieving overall structural heterogeneity. In fact, mention of this would be useful in discussion of all thinning in the Proposed Action. One approach that would fit nicely is the idea of using changes in soil type to guide thinning intensities across the landscape. A few other phrases that may help further articulate the idea of working with the existing structure in the context of creating more structural heterogeneity are "working back from the best existing structures" and "creating more contrast from the existing forest structure."

Non-Issue: *There is no disagreement with the Proposed Action or anticipated effect with the Proposed Action. The respondent provides potential language and scientific information for supporting and guiding patch distribution south of Kelly Canyon.*

Response: *These items were discussed in a recent meeting with Arizona Game and Fish Researchers and discussed in relation to project design. The ideas are quite good and will be forwarded into the implementation design where management biologist and research biologists will assist in on-the-ground layout of deferral patches. Specific language described here will be beneficial in preparation of prescriptions. Thank you for your time and effort researching these questions.*

McKinnon and Ack

Recent proposals put forth by the Regional Office indicate that future wildland-urban interface projects within 1/2 mile of the national forest boundary will not, based upon proposed changes to LRMP's, be required to follow standards and guidelines for Mexican spotted owl and northern goshawk.

While we don't recall any PAC's or PFA's within .5 miles of the Forest boundary in this project area, we would not support any thinning within them that is inconsistent with existing standards and guidelines.

Non-Issue: *No dispute or disagreement with the Proposed Action.*

Response: *The Kachina Village Forest Health Project is consistent with all standards and guidelines in the current LMP. This future potential amendment has not been applied to this project.*

McKinnon and Ack

Retaining areas of dense forest to facilitate movement of wide ranging species will be a critical component to this project fitting into the surrounding landscape. We are glad to see that movement corridors have been identified already in the project.

Non-Issue*: No disagreement or dispute with the Proposed Action.*

McKinnon and Ack

The Grand Canyon Trust is interested in identifying ways that ensure that some portion of restoration project areas will be managed for old-growth values into the future. We further understand that there are no management area designations specific to old-growth, and that old-growth designations within the Management Area 3—or suitable timber base—means that forests are managed for old-growth values in the context of a 250-year rotation.

In the short term, "existing" and "developing" old-growth designations for the suitable timber base appear to be our best option toward these ends. We recommend that existing old-growth designations are assigned according to the current distribution of all stands that qualify for this designation—includ-

ing but not limited to those in Mexican spotted owl PAC's and northern goshawk PFA's. Using a GIS, we recommend old growth stands be identified as those stands in which existing old-growth conditions were observed during pre-planning transect surveys. We urge the Forest Service to exceed the 20 percent old growth allocation minimum according to "on-the-ground" conditions.

In the longer term, we are very interested in working with the Forest Service to develop a management area status for forest ecosystem restoration. This would include (retroactive, if possible) standards and guidelines for management of restoration treatments to ensure that the restoration process is allowed to unfold and eventually arrive at a healthy, functioning, and mature forest ecosystem. We would be pleased to see this process take place in the context of the Kachina Village Project, however, we understand it will require a Forest Plan amendment and may not be immediately feasible.

Non-Issue: *There is no dispute or disagreement with the Proposed Action.*

Response: *The Kachina Village Forest Health Project will designate old growth according to standards and guidelines in the Forest Plan. All of the treatments proposed will promote development of old growth habitat. The Standards and Guidelines for Northern Goshawk Management direct us to manage for 40 percent VSS 5's and 6's which are old growth or areas with a lot of large trees. The 250-year rotation does not exist per Amendment 11 to the Forest Plan. This item will be further discussed in the EIS.*

McKinnon and Ack

We encourage the Forest Service to assess and prioritize snag and log creation according to Forest Plan standards and/or guidelines across the entire project area rather only in those locations mentioned in the Proposed Action. If there is a need to exempt areas from these values due to fire protection needs, than we encourage defining a distance from the Forest Service/private property boundary in which snags and logs are not prioritized. The .5 mile "intensive zone" suggested in the Region 3 Wildland-Urban Interface Project (2001) may be an appropriate distance.

Non-Issue: *There is no clear debate or disagreement with the Proposed Action based on anticipated effects.*

Response: *The Forest Plan does not provide standards and guidelines for creating log and snag structures. The Forest Plan does provide standards and guidelines for desired densities of snags and logs on the landscape. The creation of snags and logs will be guided by biological and watershed needs. The creation of snags from blackjack ponderosa pine has not been studied and the results of this activity are uncertain. Therefore, the FS is approaching this application conservatively. Monitoring of snags created from large blackjack trees and how many we initially create will be discussed in the EIS.*

McKinnon and Ack

Existing Conditions Description: As alternatives are developed, we strongly encourage the Forest Service to develop a description of existing conditions that clearly and transparently articulates the need for this project. Specifically, we encourage the inclusion of the fire risk assessments that were conducted for the project area, all associated modeling results, and a description of the analyses and data that were employed in arriving at this risk.

Non-Issue: *There is no dispute or disagreement with the Proposed Action.*

Response: *The above mentioned items will be included in an EIS. The FARSITE modeling is also located in the Project Record File and referenced in regard to various comments to this Proposed Action by other publics.*

McKinnon and Ack

Recreation management and roads: We are encouraged by the proposed road network and anticipate further detail on this and recreation management in future documents.

Non-Issue: *No dispute with the Proposed Action*

Response: *Thank for your support.*

McKinnon and Ack

In addition to the opportunities for riparian restoration at Kelly Seep, we believe that Mortgage Springs and Upper Pumphouse Wash (immediately downstream of the private property boundary) merit inclusion. We have included a site assessment of Mortgage Springs in the Appendix. The Grand Canyon Trust is willing to dedicate significant staff time toward writing restoration plans, and implementing restoration projects through our volunteer program. We, therefore, urge the Forest Service to include any additional riparian areas in need of restoration in this project.

Non-Issue: *No dispute with the Proposed Action. Respondent asks for additional items to be included in the Proposed Action.*

Response: *These proposals will be distributed to appropriate staff and could be picked up as separate NEPA projects.*

Germaine

Item 6: AGFD fully supports implementation of a strong research and monitoring effort on both the list of species included in the Plan and on additional species. In our research on the Mt. Trumbull experimental area, we have learned that all taxa for which we have post-treatment information display a strong response to the treatments. Some responses appear positive, as with lizards; some appear negative, as with day-bedding mule deer, whose use of treated areas has declined steadily in the 3 years since treatment; and several have been surprising, as is the case of parasitism rates on nesting western bluebirds. Without hard information on the effects of different treatment prescriptions on various wildlife, we will not have the information we need as Federal and state caretakers of wildlife resources to make informed, responsible management decisions. In addition, using real wildlife response data to make decisions regarding restoration treatments is the only way to reduce the number of lawsuits and appeals that to date have strangled these efforts.

Non-Issue: *No dispute or disagreement with the Proposed Action.*

Response: *We are working with the Arizona Game and Fish Department on research proposals. These proposals are attached and funding is sought to conduct this research and monitoring. We thank the Arizona Game and Fish Department for their work on this important monitoring and research effort.*

Germaine

Item 8 discusses retention of existing large logs. I know you are well aware of the wildlife value of logs and snags, and I urge that extensive precautions be taken to retain these logs, including the possibility of raking away flammable fuels and burning during cooler, moister periods than has existed for several burns at Mt. Trumbull. Most of the old, large logs in treated areas at Mt. Trumbull were lost in the post-treatment burns, often resulting in bare mineral soils in the outline of the lost log. This unfortunate loss can be avoided with greater care taken to protect downed logs.

Item 9: similar to logs, gamble oak motts suffered high levels of fire and logging related mortality in early treatments at Mt. Trumbull. Mortality of oaks declined markedly once fuels crews began removing slash generated from thinning from under oaks and logging crews were given specific instructions to avoid dropping trees into oak motts. Including such language in harvest contracts about reducing logging-related oak mortality would further the retention of live oak trees.

Non-Issue: *No dispute or disagreement with the Proposed Action.*

Response: *The EIS will include mitigation for reducing log and oak loss during prescribed burning. As we have discussed, timing of burning (spring burning) may reduce log loss and will be discussed in the effects analysis of the EIS. My research with Rick Miller (Arizona Game and Fish habitat specialist) has shown oak loss to be approximately 6 percent based on monitoring (Randall-Parker, 2000). The project will include mitigation in burn plans to move large material away from the base of oaks to prevent loss of oak. The EIS will more fully discuss this.*

Germaine

Item 12: Retaining movement corridors and retaining a minimum of 35 trees per 1/10th – 1 acre patches of dense cover as described in this item are both very important components of modern wildlife habitat. We have documented at Mt. Trumbull the need for retaining dense clumps of smaller trees within treated areas for the continued use of these areas by day bedding mule deer. The clumps described in this item will afford appropriate mule deer day bed site structure, based on our models from Mt. Trumbull. **Item 17** discusses retaining 16-inch dbh trees for recruiting into future snag and log habitat components. This is an obvious strength in this Plan, and I encourage retaining more rather than less because some are likely to die in the first post-treatment fires.

Items 10a, 10b, 12, 14, 15, 16, and **17** all address retention of some form of valuable-critical habitat for forest wildlife. Retaining each of the important features discussed in these items will result in decreased availability of marketable trees, potentially higher fire risk at a localized scale, and reduced overall economic potential of the restorative treatments. As such, these items may be opposed by forest industry or fire prevention advocates. However, the habitat features discussed in these items are all vital to the retention of the full array of

wildlife presently found in this area and if compromised beyond the current description in this Plan, will likely result in population declines for at least some of the species mentioned in this Plan

Non-Issue: *No disagreement or dispute with the Proposed Action.*

Response: *This comment agrees with and supports elements of the Proposed Action and supplies supporting documentation from research at Mt. Trumbull for the inclusion of this item in the Proposed Action. Respondent is supportive of the many design features included in the Proposed Action to improve and maintain key wildlife habitats. We thank you for your support.*

Germaine

Separately, too many instances exist where old-growth ponderosa trees at Mt. Trumbull were killed in post-treatment fires that burned cool until reaching the drip line of these trees, then exploded into a trees' canopy because of needle cast under the tree. Many of these trees had had duff raked away from the trunk for 2-3'. To reduce old-growth mortality, I suggest experimenting with raking all needle cast beyond the drip line of old growth trees with a small bobcat outfitted with a rake and balloon tires. A small machine with weight-dispersing tires ought not compact soils much, while saving many of the most valuable trees in this imperiled age class.

Non-Issue: *No disagreement with the Proposed Action.*

Response: *As we discussed, old trees within the project area will have duff raked from the base of the tree where high litter depth layers could result in mortality. The prescribed burn monitoring report and information Rick Miller and Tammy Randall-Parker have prepared will guide our actions. This information and mitigation will be stated in the Draft EIS.*

Germaine

Finally, I laud the efforts of the working group that drafted this plan of action for the Kachina Treatment Block. This plan aggressively attempts to reduce fire risk while acknowledging different levels of fire risk in the urban interface and throughout the forest. Simultaneously, it attempts to increase the overall health of the ponderosa ecosystem, and to maintain an appropriate level of habitat heterogeneity for native wildlife. This Plan is the best-designed attempt to improve the health of the ponderosa forest *ecosystem* that I am aware of. I encourage full support by USFS Coconino National Forest for effects research and monitoring of actions taken under this plan on wildlife populations, both to demonstrate the value of this plan and for comparison to other existing treatment prescriptions.

Non-Issue: *No disagreement with the Proposed Action.*

Response: Thank you for your support and your efforts in the design of research and monitoring proposals for this project.

I approve the Comment Responses and Identification of Preliminary Issues identified for the Kachina Village Forest Health Project.

/s/ Mike Hannemann 12/7/01

Mike Hannemann
Mormon Lake District Ranger

Significant and Non-Significant Issues Final December 2001

Rationale for Non-Significance

1. The issue is outside the scope of the proposed action. (Simply means the issue lies outside the scope of actions and effects of the specific proposal described in the scooping letter; specificity of a Proposed Action is essential to application of this reason for nonsignificance.)
2. The issue is already decided by law, regulation, Forest Plan, or other higher level decisions. (Applies most often to issues already decided by Forest Plans; be careful with issues about whether lands are suited for resource use and production; application of LMP Management Rx's to suitable lands may require project level evaluation.)
3. The issue is irrelevant to the decision to be made. (Some issues have no identifiable relevance to specific decision to be made; the more specific the Decision to be made, the more likely it is this reason will apply.)
4. The issue is conjectural and not supported by scientific (or factual) evidence:. (IDT's ignore this reason because they associate

it only with scientific evidence; but the most common application of this reason is to issues that are unsupported by factual evidence (use records, fire history, actual facts about a proposal including integrated design features); issue may be "unsupported on the basis of factual evidence.)

Process: The preliminary issues identified in the scoping comment summary document have been evaluated in this document to show significance. IDT members met on July 31, August 1, August 2, August 13, and August 21 to conduct this analysis.

Significant Issues

McKinnon and Ack

We appreciate that the Forest Service has articulated that the vast majority of trees to be thinned will be less than 12 inches and that trees greater than 16-inches diameter at breast height will be retained where possible. ***However, we feel that a 16" cap is warranted and should be instituted in accord with the GCFP's recommendation on this project.***

Monitoring of the 16-inch cap at Ft. Valley has revealed that, even in a thinning prescription that gives little deference to tree size, only 2.5 large trees per acre would have been cut in the absence of a diameter cap. And of these trees, only 1 percent were suppressed. The vast majority, or 99 percent of the trees, were dominant or co-dominant trees. Considering the description of thinning from below in the proposed action, "thinning from below results in the removal of smaller, unhealthy trees first and progresses until the target density is reached," it's unclear why any significant reason *not* to include a diameter cap exists.

This is not to ignore the economic realities of restoration. Indeed, smaller trees are more expensive for an operator to handle. There is more handling per unit of wood volume with small trees than larger trees, rendering smaller trees more expensive to thin. If the USFS has an economic argument to make about trees larger than 16 inches, it should make that argument explicitly.

In the absence of such an argument, we believe that there are significant social and political arguments to include a diameter cap. These arguments are of immediate concern to the Grand Canyon Trust and we believe they should be of concern to the Coconino National Forest.

The history of forest management in the Southwest still casts a shadow over our current efforts. It hasn't been very long since most of the big, old trees on the forest were felled at the cost of species viability and overall ecosystem integrity. At the present time, the public perception is that cutting big trees is about revenue generation, and not about the restoration of species and ecosystems.

A 16-inch cap provides the public with a clear, easily communicated guarantee that distinguishes our restoration efforts from those historical practices that have resulted in the need for restoration today. The diameter cap is also about the restoration of public confidence and trust.

With each ensuing discussion of the merits of a diameter cap will come news stories questioning our intent and our legitimacy, using well-honed activist media techniques. These opponents are very effective at whittling away at our legitimacy and weakening public support for restoration. Do we really wish to continue subjecting our efforts to these liabilities?

Having been put in the national spotlight, we also have the responsibility and the opportunity to more clearly define the purpose of restoration by exemplifying the parameters of responsible restoration. Adopting a diameter cap establishes sideboards for restoration that prevent ill-conceived adaptations of our efforts and reinforce a principle we have identified as fundamental to responsible restoration: effective restoration will require substantial reinvestment. Restoration should not be expected to pay for itself.

Considering these points, we are confident that the original recommendation put forth in unanimous resolution by the Grand Canyon Forests Partnership provides a workable and reasonable approach to diameter caps:

> *"Ponderosa pine trees greater than 16-inch dbh will be retained on the land. Black-barked trees in excess of 16 inches may only be treated to achieve the desired objectives of creating grassy openings or enhancing existing forest openings, or to enhance the health of old growth stands or oak clumps. However, all of these trees will be left standing (recruited) as snags or felled and left as downed logs."*

We strongly encourage the Forest Service to include an alternative that evaluates the impacts of the above recommendation in addition

to an alternative that includes and evaluates an 18-inch diameter cap. These evaluations should provide a quantitative explanation of how project objectives will be affected by these different diameter caps, both ecologically and economically. We further suggest that these alternatives explore—perhaps with the help of Rocky Mountain Research Station social scientists—the social, political, and historical dimensions of a diameter cap in the context of ponderosa pine forest restoration in the Southwest.

Nowicki

(The following comments were provided by B. Nowicki in a July 18 and an August 16 letter from the SWFA and others. The two letters included duplicate information, where information was duplicated exactly, it is only shown once, where there were slight variations, the information was retained).

A 16-inch diameter cutting cap is critical. Many sites have been commercially harvested removing a large component of the larger trees from forest structure. Existing large blackjacks will develop into the next generation of old growth. Retaining 16-inch dbh or greater provides some assurance the Proposed Action would not detriment this forest structure further. A 16-inch cap would not impede any of the treatments meeting the stated objectives.

Implement a 16-inch diameter cutting cap throughout the entire Kachina Village Project. Many of the sites within the project area have been commercially harvested, removing a large component of the larger trees from the forest structure. The existing large blackjack ponderosa pine trees will develop into the next generation of old growth in these areas. Retaining all trees with 16-inches dbh or greater would provide some assurance that the proposed action would not detriment even further those degraded forest structures. In fact, even a 12-inch dbh cutting cap would not impede the treatments from achieving the stated objectives, as a large proportion of the trees in the project are smaller than 12-inches dbh. That is, thinning treatments would be able to create a diversity of stand densities and structures by implementing varying levels of thinning the trees less than 12-inches dbh. This analysis and cutting cap is absolutely necessary to protecting vital components of the current forest structure, and the next generation of old growth that will develop in the forest.

Implement "thinning from below, north of Kelly Canyon" within the 1/8 mile (660 feet) immediately adjacent to homes. Beyond the 1/8 mile, implement a variable "thinning from below" to 60-120 BA north of Kelly Canyon. This combination of treatments acknowledges a distinction between wildland-urban interface treatment and general fuels reduction, and delineates a distinct defensible space in the wildland-urban interface. The 660-foot intensive zone provides a defensible space in which a crown fire can be forced to the ground, and in which firefighters can safely work. The less intensive treatment beyond 1/8 mile from houses serves as an extensive zone to reduce fire intensity as it approaches the community. The intensive and extensive zone treatments have been used in the Southwest in the past to protect communities from the threat of wildfire, and should be analyzed for use in this project. Such a method reduces the impact on adjacent forest ecosystems while providing community protection.

Furthermore, Forest Service research shows that the homesites themselves and the areas immediately surrounding houses are the largest factors determining whether houses are at risk of burning from forest fires. Therefore, the EIS needs to analyze the effectiveness and necessity of these treatments in conjunction with the current and future treatments implemented on the private property adjacent to the project. The EIS should also explain why there are areas immediately adjacent to the private property boundaries that are not being treated in this project. The project in its proposed form may implement high levels of forest thinning without effectively and efficiently providing wildfire protection for the adjacent communities.

No new roads should be constructed, even if only for the duration of the project as roads greatly increase soil compaction, transport of exotic weeds and long lasting impacts on forest structure. South of Kelly Canyon all thinning should be done by hand, the limitation would not impede any of the treatments from achieving stated objectives.

No new roads should be constructed for this project, even if only for the duration of the project. Roads greatly increase soil compaction, encourage the transport of exotic seeds, and have long-lasting impacts on the forest structure. The entire project area has previously been heavily impacted by recreation, including heavy traffic of ORV's, and should be spared further damage. Also, no area in the project is far enough from roads to require new

roads to be built. In areas that are prohibitively far from roads, this may limit the size of trees that can be cut. However, this limitation would not impede any of the treatments from achieving the stated objectives.

Do not drive cat lines through the area. For many of the reasons as listed directly above, cat lines should not be used in the area. Fire lines should be created by hand if they are absolutely necessary.

Use only hand thinning south of Kelly Canyon. The use of hand thinning may limit the size of trees that can be cut in some areas away from roads. However, this limitation would not impede any of the treatments from achieving the stated objectives. Using hand thinning, the project will still be able to create a diversity of forest structures and densities throughout the area, including dense patches within a less dense matrix. Most importantly, the use of hand thinning would minimize the soil impacts, protecting the area from further damage, and maximizing its ability to recover and achieve the proposed objectives of forest health and wildlife habitat.

Use only hand thinning south of Kelly Canyon. One of the objectives mentioned early in the planning process was to manage the area south of Kelly Canyon for wildlife, including designating the area as old growth, existing or recruiting. This area is not near houses or communities and is a critical corridor for turkey and bear as well as generally being important wildlife habitat with the potential to develop good old growth characteristics. Designating the area as old growth would provide some protection for this area of the forest as it develops old growth structure and function. Furthermore, the EIS should include a comprehensive analysis of old growth at the forest level as well as the project level, as required by the Forest Plan.

The use of hand thinning may limit the size of trees that can be cut in some areas away from roads. However, this limitation would not impede any of the treatments from achieving the stated objectives. Using hand thinning, the project will still be able to create a diversity of forest structures and densities throughout the area, including dense patches within a less dense matrix. Most importantly, the use of hand thinning would minimize the soil impacts, protecting the area from further damage, and maximizing its ability to recover and achieve the proposed objectives of forest health and wildlife habitat.

Nowicki Comment: The following comments were provided by B. Nowicki on 9/20 on the request of Tammy Randall-Parker. Tammy asked Brian several very specific questions to better understand exactly what some of the comments were addressing. I phoned and asked him to come in and visit, he could not. Instead he sent an additional letter, that did address the questions I had put forward to him regarding roads and my interpretation of their recommendations for the project. (See PRD 110A). The following is his last e-mail.

> Ms Randall-Parker,
>
> I have not been in touch with Taylor, but I hope to speak with him soon regarding the Kachina Village Project. I assume that his lengthy comments are being considered in developing the alternatives.
>
> I will attempt to clarify, as succinctly as possible, the SWFA comments you and I spoke about yesterday regarding the Kachina Village Project. These include: the 1/8-mile treatments around communities, 60-120 BA north of Kelly Canyon, temporary roads, and hand thinning south of Kelly Canyon.
>
> 1/8-mile WUI treatments:
>
> The Forest service researcher Jack Cohen states that the area immediately adjacent to structures (houses) is the most important determinant of whether or not that house will burn. (Many of his ideas are presented in the SWFA document "Protecting Communities from Forest Fires" that can be found on our website www.swfa.org, although I am sure that you can also access his findings directly through the Forest Service.) The ideas regarding protecting houses fit in with the concept of an intensive zone treatment. In many cases, intensive zone treatments (often a narrow band of 1/8 mile= 660 feet= 200 meters directly adjacent to communities) provide a defensible space for fighting fires as well as providing a shaded fuelbreak in which the fire can drop to the ground. The exact prescription for such an intensive zone would be highly site-dependent, and the district fire and fuels experts would have to determine them on a site-by-site basis. However, the treatment generally requires the removal of ladder fuels and a reduction of fuels loads, as well as eliminating continuous canopy so that only relatively small groups and individuals

would be left. "The wildland fuel characteristics beyond the homesite have little if any significance to WUI home fire losses." (Cohen 1999). Therefore, treatment beyond the area immediately adjacent to communities (1/8-mile) should be treated with a general fuel reduction as would be used throughout the wildland forest. Of course, no WUI treatment is effective unless the personal properties and all homesites are treated. However, used in conjunction with home treatment, the above methods can provide real community protection, while at the same time reducing the need for drastic and extensive thinning beyond the area immediately adjacent to communities.

60-120 BA North of Kelly Canyon:

Thinning to a range of 60-120 sq ft BA should provide all of the benefits that are provided by thinning to a 40-120 sq ft BA, but would provide some protection against unnecessary and overzealous thinning. The negative ecological impacts of reducing a significant portion of the forest to 40 sq ft BA could be severe. It is also my understanding that 40 sq ft BA is lower than is necessary to achieve the desired goals of increased forest health and lowered fire risk. (An analysis of the resulting crown bulk density may be most appropriate for determining the latter.) Of course, this range of BA refers only to forested acres, and not openings and meadows. Also, we would assume that the entire range of 60-120 sq ft BA would be represented, and there would not be a bias toward the low end of the range.

Temporary Road Construction:

The negative ecological impacts of road building may far outweigh the benefits gained from an increased level of thinning. Understandably, the lack of new roads may, in some cases, reduce the size of trees that may be removed from an area, thereby affecting the post-treatment stand density. However, in many cases the resulting difference may be marginal. More importantly, the desired effects of thinning may be only slightly reduced, but the negative effects of roads would be entirely eliminated. In some instances, the district may consider cutting trees even though the logs could not be removed by road. In these cases, the logs may be lopped or bucked and eventually consumed by prescribed fire. Of course, in some cases, such methods would create very high fuel loads for the first prescribed fires. In such cases, the district could consider thinning over a series of years, with a series of prescribed fires. Furthermore, the district should analyze the need for roads in each stand, not just the need for them overall.

Hand-thinning South of Kelly Canyon:

Use of hand-thinning in the area south of Kelly Canyon may restrict the cutting cap to 9"dbh. However, thinning with a 9" cap can achieve the goals of the projects. At the same time, the area will be spared the severe impacts of soil compaction and disturbance by large machines. The costs of such soil impacts may far outweigh the ecological costs of leaving a higher tree density on the site.

SWFA expects the Peaks Ranger District to perform a fair and thorough analysis of these issues. Please do not analyze these issues in such a way as to determine, for example, whether a 9" cap will allow you to reach you goal of 40 BA. Obviously, this is circular reasoning and unfair. Rather, analyze whether a 9" cap will allow you to achieve the goals of fire risk reduction and forest health. Present your findings not by simply saying, for example, that one alternative provides greater fire risk reduction than another. Instead, please present your findings as a quantitative result, such as "Alternative X provides only 80% as much increased tree growth as Alternative Y", or "Alternative X will carry a continuous crown fire at 50 mph, whereas Alternative Y will carry one at 60 mph". Presenting the findings as such will allow us to consider the proportional difference in benefits compared to the differences in treatment and collateral damage (such as roads).

Thank you very much for considering these ideas. Please feel free to call me if you have any further questions.

Brian Nowicki

Non-Significant Issues

Bird (April – Response to NOI)

There are concerns from Mt. Trumbull that residual trees in a similar silvicultural-restoration application were lost to mortality. It may be that the residual tree mortality was related to the effects of prescribed burning in combination with unique soil types that resulted in irreversible damage to root systems. The FS must account for such unforeseen possibilities in the Kachina Analysis Area by completing extensive soil surveys, and identifying sensitive soil types where similar mortality might occur. Prescribed burning should be planned spatially and temporally to account for such sensitive soils. Will the ground disturbance associated with silvicultural treatments also impact these sensitive soils?

Conjectural, Unsupported: *We are not aware of any evidence that suggests that "unique, sensitive soils" were a factor in tree loss at Mt. Trumbull. In the Kachina analysis area, the Coconino National Forest "Terrestrial Ecosystem Survey" is used to identify soils that are susceptible to damage from a variety of management practices. Management practices intended to protect soils from damage by prescribed burning will be developed for all treatment areas. Ground disturbance from mechanized equipment has the potential to adversely impact soil condition. Management practices designed to protect soil condition will also be developed for treatment areas.*

Bird (April – Response to NOI)

We are concerned that the Kachina Timber Sale will jeopardize the viability of species that thrive in forest ecosystems through activities associated with timber harvest and ground-disturbing activities intervene in natural disturbance processes that are vital to ecosystem sustainability and degrade water quality and watershed condition. There are populations of focal species and species-at-risk (MIS and TES) that occupy the analysis area and surrounding landscapes that seem to be surviving despite the "unnatural conditions" the Forest Service purports to exist. The FS is required per its 1987 LRMP as well as Federal planning regulations to collect and present information on population numbers and trends for these species as well as define what constitutes the "minimum number" of individuals of each population to secure its long-term viability. The FS must present information to support determinations that the proposed Kachina Timber Sale will not contribute to further declines in these populations and more listing under the ESA. Simply, it is too soon to know how the "treatments" at Fort Valley will affect focal species and species-at-risk.

Conjectural, Unsupported: *Species viability analysis as required in NFMA is appropriately addressed at the Forest Plan level. The 1987 Coconino National Forest Plan and subsequent amendments, including Amendment 11 (1996), include standards and guidelines for wildlife management. These standards and guidelines were developed to meet the needs of Management Indicator Species, threatened, endangered and sensitive species on the Coconino National Forest. The Proposed Action meets all standards and guidelines for TE&S species management as described in the Coconino LMP and Amendments. Consultation with the USDI Fish and Wildlife Service on this project has already occurred (USDI Fish and Wildlife Service 2001). In the biological opinion, the Fish and Wildlife Service concurred with the Forest Service that the Proposed Action is not likely to adversely affect the bald eagle, black-footed ferret or jaguar. A biological assessment and evaluation will be prepared for sensitive species.*

This project is not a timber sale. The goals of the Kachina Village Forest Health Project are to improve forest health and reduce risk from serious and uncontrollable wildfires through a variety of thinning treatments followed by broadcast burning. Serious and uncontrollable wildfires pose a greater threat to species viability than thinning treatments in the Proposed Action. Recreation and access management proposed will also benefit the wildlife which use this area.

Bird (April - Response to NOI)

The Kachina Timber Sale will also damage social and economic uses and values associated with natural forests for the benefit of the timber industry, even though non-timber uses and values are far more important to local communities.

Conjectural, Unsupported: *Forest Service Manual (FSM) and Forest Service Handbook (FSH) 1909.17 contain detailed guidelines for conducting economic and social analysis. However, FSM 1970.3(6) states, "Select cost effective methods of conducting economic and social impact analyses to ensure that the degree of analysis is commensurate with the scope and complexity of the proposed action." FSM 1970.6 adds, "The responsible line officer determines the scope, appropriate level, and complexity of economic and social analysis needed."*

The purpose of an analysis is to assist in decision making. The forest will prepare an economic analysis that displays estimated costs and returns of the alternatives contained within the EIS for the responsible official. The IDT will conduct a financial analysis that will meet this requirement.

"For purposes of complying with the (National Environmental Policy) Act, the weighing of merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations (emphasis added). (FSH 1909.15 41.1(2); FSH 1909.15 22.35; 40 CFR 1502.23. FSM 1905-55 defines "net public benefits" as "an expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index." This definition is consistent with the direction of complying with NEPA.

The forest will accomplish a balanced decision through consideration of alternatives based on many analyses within the EIS

Germaine

Item 2 discusses retaining ponderosa trees "approximately" 150 years or older. It is not clear how and by whom decisions on these trees will be made. Similarly, this item states that >16" trees will be "retained where possible." What criteria determine retention/removal, and who will make the decision on the fate of an unknown number(?) of trees in such an ecologically important size class from which our future old-growth trees are to be recruited? Finally, I urge that all road and landing locations avoid large diameter trees in all instances, not simply "where possible" as stated in the proposal. In addition to soil compaction, old landings have roads that are often traveled for years even if legally closed, and landings under old trees will unquestionably become popular (renegade) campsites.

Unsupported: *Our marking crews mark all trees and the number of 16" trees anticipated for removal is described in the previous issue response. As we discussed in my office, our experience is that landings can be used as dispersed recreation sites, however this is generally minimal and the project is proposing road closures that will lessen potential for this type of activity.*

Nowicki

The EIS needs to include an analysis of the grazing allotments in this area and appropriateness of grazing in general and the deferment needed to allow ground vegetation to respond after thinning.

Outside the scope of the proposed action: *The area includes portions of two grazing allotments and one sheep driveway. The appropriateness of grazing in this area is outside the scope of the decision to be made. The decision will not decide the appropriateness of grazing for this area. The deferment needed to allow ground vegetation to respond after thinning and prescribed fire is discussed in the Proposed Action. Grazing by wildlife and livestock will be included in cumulative effects in the EIS. As stated in the Proposed Action for this project on page (Item # 16). The annual operating instructions for grazing allotments will be adjusted as needed to allow for recovery of naturally occurring herbaceous communities. Monitoring will be a mitigation item described in the EIS.*

Metzner

Project is way too big for needs pressing. This is another move by the government to control the people's freedom of movement and grab public lands. Scope of project is way out of line for a natural forest. More controls on camping and where, not needed or wanted. We do not want more controls on people's freedoms. Leave the trails alone for the people who use them.

Conjectural: *We are changing the types of access to certain areas and changing the type of use in some areas but not eliminating uses within the project area. People are free to move about this area and, therefore, we are not controlling the people's freedom of movement to the project area. The changes in camping are needed to reduce fire risk. In the last 30 years, there have been 205 fires in the Kachina Village Project area, with 151 of those human caused. These fires have originated from four central areas, including FR's 237 and 535 and the Mexican Pocket Area. These areas are proposed for designated dispersed camping and will result in camping and campfires isolated to small areas which will be treated to lessen the risk of a large wildfire that would originate from the camping locations. The grab at public lands statement is conjectural as these are public lands. Lastly, trails are causing resource damage to the area. Forest Service designated trails are proposed to replace the "user created" trail system. The "user created" trail system has dam-*

aged meadows, riparian habitats, and wildlife habitat. The FS system will be built following wildlife, archeological, and watershed assessments and be constructed using best management practices to protect the forest.

Bird

The proposal represents a "sledgehammer" approach to forest management, the extensive logging proposed has the potential to exacerbate fire danger, extirpate wildlife, and increase sedimentation and flooding.

Unsupported: *The Kachina Village Forest Health Project was designed by wildlife professionals from the USDA Forest Service, Arizona Game and Fish Department, and USFWS, along with Northern Arizona University professors and Rocky Mountain Research Station scientists. Wildfire professionals from the USDA Forest Service and Northern Arizona University along with Rocky Mountain Research scientists and personnel from the Flagstaff Fire Department, Highlands Fire Department and Arizona State Land Department assisted in the design of the project with fire reduction goals in mind. Professional foresters from the USDA Forest Service and Northern Arizona University along with Rocky Mountain Research Station scientists were involved in the design of thinning methods and prescriptions to meet project objectives. Hydrologists from the USDA Forest Service have consulted with ADEQ and contributed to the design of the project, where the greatest threat is a wildfire to the Oak Creek watershed. Many months of review, discussion and planning by over 30 professional resource specialists hardly represents a "sledgehammer" approach as you have described.*

There is a substantial body of knowledge that supports the value of thinning and prescribed burning to produce quality fuels treatments and forest health objectives. There also is a strong body of evidence supporting the notion that crown fire potential is reduced by reducing canopy density and raising crown base height. The consensus in the fire science community is that lower stand densities and reduced fuel volumes are necessary for maintenance of "fire safe" forests. As Agee points out (1996, pgs. 52-68 in: Proceedings 17th Forest Vegetation Management Conference, Redding, CA), "..fire safe forests are not fire proof, but will have":

- Surface fuel conditions that limit surface fireline intensity;
- Forest stands that are comprised of fire-tolerant trees, described in terms of species, sizes and structures; and
- A low probability that crown fires will either initiate or spread through the forest."

The single most ecologically damaging and life threatening forest fire is the crown fire. The intensity of crown fires prevents direct fire suppression. The massive blizzard of embers associated with crown fires leads to long-range spot fires which circumvent areas with little fuel. The presence of numerous spot fires leads to erratic fire behavior and rapid acceleration in a fire's growth. The most critical element to fire management is the prevention of crown fires. This is a primary goal of the Kachina Village Forest Health Project.

In planning the Kachina Village Forest Health Project all of the objectives, standards and guidelines in the Coconino Land Management Plan and amendments were used, hereafter referenced as the Forest Plan. This environmental assessment is tiered to the Environmental Impact Statement for the Coconino Forest Plan. The Kachina Village Forest Health Project meets all standards and guidelines for management as described in the Forest Plan. Specifically, Amendment 11 to the Coconino Forest Plan was reviewed thoroughly. This amendment to the plan includes the recommendations for the northern goshawk, Mexican spotted owl and old growth management. The standards and guidelines are the result of the recommendations made by scientific management teams, which prepared the Recovery Plan for the Mexican Spotted Owl, *(Block, et. al. 1996) and* Management Recommendations for the Northern Goshawk in the Southwestern United States, *(Reynolds, et.al.1992). Both of these documents were frequently referenced and reviewed when designing and preparing the Kachina Village Forest Health Project.*

The Recovery Plan for the Mexican spotted owl states that "two primary threats that should be the focus of such management priorities are catastrophic wildfire and widespread use of even-aged silviculture, Block et.al. 1996."

The *"Recovery Plan"* reads as follows:

> *"Heavy accumulations of ground and ladder fuels have rendered many Southwestern forests vulnerable to stand-replacing fires. Such fires represent a real and immediate*

threat to the existence of spotted owl habitat. The management guidelines are intended to provide land managers with flexibility to reduce these fuel levels and abate fire risks. Fire management should be given the highest priority. (Recovery Plan for the Mexican spotted owl, 1996 (page xii))

The "Management Recommendations for the Northern Goshawk in the Southwestern United States" state the following:

Southwestern forests have been altered from presettlement conditions by fire suppression, timber harvesting, livestock grazing, mining, and recreational uses. Prior to fire suppression in the Western United States, ponderosa pine forests were burned by low-intensity surface fires at 2- to 15-year intervals. Fires burned at lesser frequencies in mixed-species forests (5-22 years). These fires maintained forests that were relatively open and dominated by mature trees by regularly burning and killing small trees.

Habitat changes resulting from fire suppression in ponderosa pine and mixed-species, and to a lesser extent spruce-fir forest, are: 1) the replacement of open, single-storied stands by dense multistoried stands, through tree regeneration; 2) loss of natural openings by tree invasion; and 3) changes in the abundance an composition of plant species in both the understory and overstory due to plant succession.

Accumulated fuels and dense forest conditions resulting from fire suppression have also increased the potential loss of goshawk habitat through catastrophic wildfire and epidemic infestations of insects and diseases. Increased shading from the denser regeneration has also reduced herbaceous and shrubby understories that provide important food and cover for goshawk prey. Livestock and wildlife browsing have accentuated this loss. In addition to these changes, timber harvesting which began in the 1800's, has focused on large trees, resulting in few remaining mature and old forests and associated habitat attributes.

The present conditions in southwestern ponderosa pine and mixed-species forests reflect the extent of human interference with natural processes. Given the improbability of returning to the previous frequencies of natural disturbances, some active management (mainly thinning and prescribed fire) will be necessary to produce and maintain the desired conditions for sustaining goshawks and their prey. (Executive Summary pages 5 - 6)

The team that worked on developing the Proposed Action considered all of this information in light of the fires we have experienced in this area since 1994 and the effects on Mexican spotted owl, northern goshawk and other wildlife species affected by recent fires.

Bird

The proposal forces the taxpayer to foot the bill for an enormously expensive project whose benefits are highly uncertain.

Conjectural, Unsupported: *The respondent has a dispute with the Proposed Action, however, the anticipated effects—which are economi— are not supported or substantiated by any facts or supporting information. The EIS will include an economic analysis and effects analysis.*

Bird

Temporary road construction will simply increase the environmental costs of the Kachina Project, increase fire hazard as they are used by ORV's and provide additional public access. The only reason the roads are needed is to remove commercial materials.

Unsupported, Conjectural: *Temporary roads are used for a very short period of time during thinning and then obliterated. There is no data or research to show that short-term effects of increased fire hazard exist or that ORV use increases. The respondent has provided no affects associated with ORV use of roads for short periods of time.*

Bird and Nowicki Clarification Letter

It remains entirely unclear what purpose the 3-foot-wide dozer line along the canyon rims will serve. This construction might potentially change the hydrology of the canyon system significantly by redirecting runoff away from the canyon edges.

Do not drive cat lines through the area. For many of the reasons as listed directly above, cat lines should not be used in the area. Fire lines should be created by hand if they are necessary.

Unsupported, Conjectural: *As part of the prescribed burning portion of the Kachina Village Project, fire control lines will be necessary to keep fire in predetermined locations and also to keep fire out of sensitive areas and steep inaccessible terrain such as Kelly and James Canyons. When possible, natural and other features such as rockslides, elk trails, roads or old skid trails are used instead of constructing new control lines. When the construction of control lines is necessary, control lines are generally constructed to the most minimal extent possible. On prescribed burns in similar terrain to that of the Kachina Village analysis area, minimal line construction by hand or by using wet line are the preferred methods. When burning is complete, crews install waterbars and recondition lines. In some cases, mechanized equipment may be used. The Peaks and Mormon Lake districts have had good success with using a small bulldozer and having the operator only use the corner of his blade. This constructs a control line of 1 to 3-feet wide. When the project is complete, the operator can roll back the material pushed aside and contour to the original condition. Control lines constructed near Kelly or James Canyon will not be located directly near the rim of the canyon for two reasons. First, control lines are preferred on flatter terrain with less likelihood of rolling material having a chance to roll into the canyon. Second, as part of the analysis process, it was agreed to leave denser cover on the rims of the canyons for wildlife cover.*

There is no anticipated influence on runoff characteristics associated with this action.

McKinnon and Ack

South of James Canyon, in areas proposed for thinning and burning, cheatgrass (*Bromus tectorum)* is a regular and often dominant understory species. We are concerned that the proposed treatments by themselves—especially burning—may facilitate its further spread and competition with native species. We strongly encourage the Forest Service to assess the need for an integrated strategy to improve, rather that potentially exacerbate the problem, both south of James Canyon and in other locals within the project area where cheatgrass poses a foreseeable risk.

The Nature Conservancy's Wildland Weeds Management and Research Program has developed the following recommendations for the management of cheatgrass. We've attached this document in its entirety as an appendix to these comments for your use.

Lasting control of cheatgrass will require a combination of chemical control, physical control, vegetative suppression, and proper livestock management where land is grazed. This "cumulative stress" method will keep the plants constantly under stress, reducing their ability to flourish and spread. Also, a cumulative stress approach provides a level of redundancy in case one type of treatment is not implemented or proves to be ineffective.

An effective management program needs first to control existing infestations, and second to develop a land management plan to deter re-infestation of Bromus tectorum. New infestations should be controlled first before cheatgrass becomes dominant and alters the soil chemistry of the area (Belnap pers. comm.). Since cheatgrass reproduces entirely by seed, the key to controlling existing infestations is to eliminate new seed production and deplete the existing seed bank.

Bromus tectorum is most commonly controlled with herbicides. Quizalofop, fluazifop, sethoxydim, paraquat, glyphosate, and imazameth can be applied in the early spring, before perennial grasses have emerged, to control cheatgrass. Additionally, sulfometuron methyl, and atrazine can be applied in the fall to control cheatgrass in winter crops. Several of these herbicides may damage established perennials. Therefore, the timing of herbicide application is crucial to ensure that cheatgrass is selectively controlled. Burning is usually conducted in late May or early June, after the plants have dried (Beck, pers. comm.). Reseeding native perennial grasses is necessary after burning or cheatgrass and other weeds will simply reestablish in the disturbed area.

A two to three-year combination of burning, herbicide application, and reseeding can be used to control and re-vegetate an area that is almost exclusively dominated by cheatgrass. Burn and re-seed the area with native perennial grasses during the first year. The following spring, apply herbicides before the seeded perennial grasses emerge in order to eliminate any cheatgrass that emerged from the seedbank after the burn. If necessary, apply a second round of herbicides early in the spring of the third year to control any new

cheatgrass seedlings and provide time for native bunchgrasses to establish. This should control the cheatgrass, deplete the existing cheatgrass seed bank, and provide adequate time for perennial grasses to establish to the point where they can suppress any new cheatgrass invasions.

If the area is only partially infested with cheatgrass, burning is usually not recommended (Belnap, pers. comm.). Cheatgrass can rebound quickly after a fire and the elimination of the remaining valuable species will only enhance its ability to spread.

Hand pulling cheatgrass is very labor intensive and is worthwhile only on very small infestations. Mowing and cutting are not usually recommended methods of control. Plants that are cut before seed ripening will regenerate new culms and produce seeds at the cut height. Plants that are cut after seed ripening will die, but by this point the seeds are already viable. However, repeated mowing (every three weeks) can eliminate cheatgrass seed production in areas were herbicide applications are unacceptable or cannot be safely used.

Once an area has been treated, native perennial grasses should be plugged and/or re-seeded or cheatgrass will return to pre-burn densities within a few years (Beck, pers. comm.). Hilaria (Hilaria jamesii) has been observed to grow well in cheatgrass infested areas of the Colorado Plateau by taking advantage of warm summer rains (Belnap pers. comm.).

Unsupported: *The comment that the Proposed Action will exacerbate the cheatgrass problem is unsupported. The EIS will include effects analysis, as well as common mitigation items which will lessen spread of this species. Cheatgrass is associated with disturbed areas and after treatment, cheatgrass would be expected to increase. Cheatgrass is currently widespread within the project area, however density is low. Cheatgrass in the Southwest will do very well when we have a wet spring. A wet spring following treatments has the potential to increase cheatgrass throughout the project area. Cheatgrass can be easily out competed by native grasses which flourish during the wet monsoon season in the Flagstaff area. In short, cheatgrass in this part of the country is very cyclic with boom and bust years, dependent upon weather conditions. The project will include seeding high disturbance areas with native grasses to lessen cheatgrass expansion. The project will also include fall burning in some location which will lessen cheatgrass spread. The project, by virtue of opening up areas, will benefit native understory species which will reduce and lessen the spread of cheatgrass. Mitigation will be listed in the draft EIS to reduce cheatgrass expansion in this area.*

McKinnon and Ack

The interruption of natural processes in Southwestern ponderosa pine forests has been attributed to widespread intensive livestock grazing that was introduced in the mid and late 19th century. Upon introduction, livestock grazing removed the herbaceous understory that is believed to have limited pine seedling establishment and, therefore, also tree densities through competition for light, water, and nutrients, in addition to carrying frequent low intensity ground fires.

In the absence of this "competition fire filter" that limited pine seedling establishment, anomalously high densities of trees have established that now facilitate similarly anomalous high-intensity crown fires that threaten ecological and human values alike. In addition, the pine irruptions have led to a decline in overall biological diversity of these forest ecosystems, much of which was historically based on the understory.

Considering this, perhaps the most critical element to the restoration process for ponderosa pine forests is ensuring that we facilitate understory (grass and forb) recovery. In part this must come through control of herbivores. Of the two major herbivore pressures currently on the landscape (elk and domestic livestock), we can only directly control the intensity, seasonality, and duration of domestic livestock grazing.

We think the appropriate frame of reference for considering post-treatment (thinning and/or burning) livestock grazing begins with the assumption that the most desirable management regime—and the one that will most likely facilitate our restoration goal of understory recovery—is livestock grazing deferral for a period of time.

Based upon our observations at other restoration sites, and discussions with Forest Service personnel, we recommend this period of time span at least three growing seasons. We further recommend that quantitative and qualitative measures of recovery should inform whether, after three growing seasons, livestock should be reintroduced, and if so, at what

intensity, seasonality, and duration. One measure of recovery included in this assessment should be whether the native understory is capable of carrying low-intensity grass fires.

Conjectural, Unsupported: *The recommendation of a three growing season deferral is unsupported, rather monitoring should be used to determine the proper timeframe. The area includes portions of two grazing allotments and one sheep driveway. The deferment needed to allow ground vegetation to respond after thinning and prescribed fire is discussed in the Proposed Action. Grazing by wildlife and livestock will be included in cumulative effects in the EIS. As stated in the Proposed Action for this project on page 6 (Item 16). The annual operating instructions for grazing allotments will be adjusted as needed to allow for recovery of naturally occurring herbaceous communities. Monitoring will be a mitigation item described in the EIS.*

I approve the Significant and Non-Significant Issues for the Kachina Village Forest Health Project.

/s/ Mike Hannemann 12/07/01

Mike Hannemann
Acting Mormon Lake District Ranger

Alternative Document Including Alternatives Suggested by the Public Final December 6, 2001

This document tracks the formulation of alternatives based on significant issues and alternatives suggested by the public.

Alternatives Considered but Eliminated from Detailed Study

Bird (April NOI response – April 19, 2001) – Alternative Suggested

The Forest Service and GCFP have not offered information that would preclude a purely process-based restoration alternative. We ask again that the Forest Service fairly and accurately analyze an alternative that would apply prescribed burns only with necessary pre-fire fuels treatments, such as raking needless from trees 24-inch dbh, pruning lower ladder-branches, etc. Such non-commercial approaches to restoration are being implemented across Arizona by the Forest Service including the Peaks Ranger District.

Response: *Prescribed fire without thinning over the entire project area, as a distinct alternative, was not practical from a biological standpoint, nor did it meet the Kachina Village Forest Health Project objectives. Therefore, it was not considered as an alternative that would use your suggestion across the entire landscape. However, this treatment is incorporated into the Proposed Action to achieve a mosaic of effects. Prescribed fire without any mechanical thinning is proposed for those stands in which it will be effective and the desired effects are likely to be achieved.*

*The **prescribed fire without thinning alternative** was not developed as a distinct alternative for the entire project area, because it did not meet enough of the project objectives. There are two main reasons: 1) prescribed fire alone is not effective in thinning the sizes of tree in the project area, and 2) prescribed fire alone does not substantially reduce the risk of future catastrophic wildfire because not enough trees are killed. The following information discusses these two points.*

1) Most studies indicate that prescribed fire alone is not effective in thinning the sizes of trees in the Kachina Village Forest Health Project.

Prescribed fire is not a very selective thinning tool, because a number of fires are required to reduce fuels, change the understory, and overcome the effects caused by fire exclusion (Harrington and Sackett 1990). Gaines and others (1958), Woolridge and Weaver (1965), and Lindemuth (1960) all reported that fire was a rather imperfect tool for thinning. Harrington (1987) reported significant reductions in tree density within sites occupied by "dog-hair" thickets, while the same prescribed fire did little to reduce tree density where sites were dominated by larger trees. Sackett (1980), Davis and others (1968), and Campbell and others (1977) reported similar results in both prescribed and natural fires (Weatherspoon 1996).

In another study, Gaines et al. (1958) reported that even though younger, suppressed classes had been thinned by fire, the commercial overstory suffered substantial injury. The trees Gaines refers to as "the commercial overstory" in 1958 are the larger, older trees this project wishes to keep alive for wildlife diversity. Lindenmuth (1960) studied the effects of fire in east-central Arizona and concluded that 24 percent of the potential crop trees were released from competition, but 17 percent were killed or severely damaged. Again, the trees Lindenmuth refers to in 1962 as "crop trees" are the larger, older trees this

project wishes to keep alive for wildlife diversity. Harrington (1981) reported an average of 26 percent reduction in stems per acre in southeastern Arizona, however surveys in years following the burns revealed results that need special attention—which is the subsequent loss of old-growth ponderosa pine trees.

Attempts to use fire alone to thin dense stands frequently resulted in high levels of mortality in the residual stands (Swezy and Agee 1991, Sackett and others 1996, Covington and Sackett 1984). Post-fire mortality among old growth trees was 23 percent higher in burned plots than in the unburned controls over a 20-year period (Sackett and others 1996). More than 30 years of study (since 1976) at the Fort Valley Experimental Forest has demonstrated that fire alone cannot effectively reduce stand levels enough to protect remaining mature and old growth trees. Allowing prescribed fires or wildfires to selectively thin pine forests of the Southwest may be the most detrimental in retaining what old growth trees that remain (Weatherspoon 1996).

Substantial research has demonstrated the effectiveness of thinning as one component in a forest restoration program (Swezy and Agee 1991, Fiedler 1996, Fenny and others 1996, Weatherspoon 1996, Edminster and Olsen 1996, Covington and others 1997, Scott 1998, Harrington and Sackett 1990). Therefore, some combination of thinning, manual fuel removal, and prescribed burning will be necessary to restore ponderosa pine ecosystems to more natural conditions (Arno 1996; Fiedler 1996; Swezy and Agee 1991; Oliver and others 1994).

Most research points out the imperfection of fire as a thinning tool. Prescribed fire by itself is not effective in thinning ponderosa pine trees with diameters over 3 inches or trees that are over 6 feet tall without significant damage to the larger, older trees this project wishes to retain. On the Kachina Village Forest Health Project, the trees in overabundance and in need of thinning are predominantly 5-16 inches in diameter (PRD 79 and PRD 79A).

Beginning in the 1930's, research was conducted to evaluate the effectiveness of a range of treatment strategies to reduce stand densities and fuel loads. Many researchers initially believed that simply reintroducing fire would be sufficient to substantially reduce both stand densities and fuel loads. Prescribed fire has been a successful means of fuel reduction in some forest types (Biswell and others 1973, Knorr 1963, Weaver 1952).

Folliott et al. (1977) reported that a positive thinning response followed prescribed fire in northern Arizona, but basal area was not reduced enough for optimal stand stimulation. Weaver (1947) reported that 30 years after burning, a young ponderosa pine stand had fewer stems per acre, greater heights, and larger diameter than an adjacent unburned stand.

2) Using prescribed fire without thinning does not substantially reduce the risk of a catastrophic wildfire.

One of the project's primary goals is the reduction of catastrophic (crown) fire. The risk reduction is accomplished by reducing the amount of ladder fuels and tree canopy fuels, as well as by reducing the amount of ground fuels (Ottmar 1997; Agee and others 1999; Buckley 1992; Van Wagtendonk 1996). Reducing ground fuels temporarily reduces the fuel load and ground fire intensity that could initiate a crown fire. Removing ladder fuels will reduce the potential for ground fire to climb into the tree crowns. However, only by recreating a discontinuous canopy layer can a treatment inhibit the rate of spread and the eventual extent of a destructive crown fire.

In a report of the National Commission on Wildfire Disasters, Sampson (1994) states many forest situations will require mechanical removal of excess trees via thinning before fire can safely be re-introduced. In an extensive 1995 report to Congress, the Sierra Nevada Ecosystem Project (ponderosa pine is a major forest type in the Sierra Nevada) authors concluded that an extensive modification of forest structure by thinning and burning is needed to minimize severe fires in the future (McKelvey and others 1995). In an extensive scientific evaluation (involving over 100 scientists) of the effects of Forest Service management practices on the sustainability of eastern Oregon and Washington ecosystems (ponderosa pine is a major forest type), Everett and others (1994) found a need to use thinning as one of several actions to restore wildfire to more natural behavior. In contrast to the destructive crown fire, a more natural fire behavior for ponderosa pine forests is a low intensity ground fire with flame lengths less than 2 feet.

Bird (July 23, 2001) – Alternative Suggested

Develop a non-commercial alternative, restoration alternative that uses non-commercial treatments in the WUI*. Focus efforts on private homeowner education and assistance, encouraging re-introduction of fire outside the WUI. Homeowner education

would be a coordinated program of public presentations, direct mail education, media public interest education and news features. The local economy stimulated through local landscape businesses and construction companies retrofitting home sites for protection. Jobs and income generated by activities on Federal lands that prepare the forests outside the WUI for re-introduction of fire.

Goals include:

1) improve protection of homes
2) economic opps
3) clean water and healthy watersheds
4) restore wildfire to forest ecology
5) improve scientific understanding of fire ecology
6) improve public understanding of fire ecology and forest management.

Alt. Based on work of Jack Cohen: 40 meters of home most important; beyond 40 meters has little effect on the likelihood a home will burn.

*Inside WUI—focus on most flammable material—brush and weeds and lower branches of trees. Prioritize treatments around communities.

Outside the WUI use prescribed fire—prioritize use—inconjuction with non-commercial preparation such as brush removal, needle raking and lower branch pruning. If small tree removal is scientifically justified, offer as public fuelwood by permit only.

Response: *The respondent has overlooked that this project has a purpose and need which goes beyond the purpose and need for reducing fire potential. The purpose and need is aimed at long-term improvement of forest health. The description of work proposed by the respondent within the WUI and outside the WUI are very similar. As described in the previous response, these actions would not meet the objectives of the Kachina Village Forest Health Project. Prescribed fire with only raking, pruning, etc. will not meet most all of the purpose and need for this project.*

The Federal Government does not have the authority to require homeowners to change physical conditions present on private land. However, the city and county have some authority through ordinances and such. In the Flagstaff community the Forest Service and local fire departments have provided education as well as assistance to private landowners to reduce wildfire risk. The Proposed Action includes ongoing efforts that include working with homeowner's adjacent to the communities of Flagstaff, Kachina Village, Mountainaire and Forest Highlands. Local fire departments, as well as the Forest Service, have conducted public presentations and completed direct mail education. Almost daily there are articles in the paper and news media across the West regarding homeowner preparedness. However, this in and of itself will not solve the problems south of Kachina Village and Forest Highlands.

There are numerous small businesses in the Flagstaff area that conduct thinning and prescribed burning on private land and replace shake-shingle roofs with metal ones. Many of the goals of your alternative are similar to our goals and goals of the Grand Canyon Forests Partnership. However, your goals will never be met with the alternative you have recommended, especially Item 1 (protection of homes).

All lands adjacent to Forest Highlands and Kachina Village that are in need of treatment to address declining forest health and reduce high fire hazard are proposed for treatment. A fire in this area (as shown with Farsite Modeling PRD #73) will easily travel 2.5 to 3 miles in one afternoon, thereby prompting us to look at the entire area in order to protect MSO PAC's, old-growth habitats, old trees, northern goshawk habitat, cultural sites, the Oak Creek watershed and homes in Forest Highlands and Kachina Village. Direction in the Coconino LMP provides guidance on the size and scale of the urban interface. Page 93 of the Coconino LMP defines the urban interface as an area up to 10 miles long in a southwesterly direction from urban areas.

Reducing stand densities throughout the Kachina Village Project area is critical to reducing fire potential. The single most ecologically damaging and life threatening forest fire is the crown fire. The intensity of crown fires prevents direct fire suppression. The massive blizzard of embers associated with crown fires leads to long-range spot fires which travel over and beyond areas with little fuel. The presence of numerous spot fires leads to erratic fire behavior and rapid acceleration in a fire's growth. The most critical element in fire management is the prevention of crown fires. It is important to evaluate fire potential miles away from communities as well as immediately adjacent to them.

Nowicki

In fact, even a 12-inch dbh cutting cap would not impede the treatments from achieving the stated objectives, as a large proportion of the trees in the project are smaller than 12-inches dbh. That is, thinning treatments would be able to create a diversity of stand densities and structures by implementing varying levels of thinning the trees

less than 12-inches dbh. This analysis and cutting cap is absolutely necessary to protecting vital components of the current forest structure and the next generation of old growth that will develop in the forest.

Response: *A 12-inch cap was analyzed by reviewing forest vegetation simulator computer modeling and applying professional knowledge to decide if a 12-inch cap would result in a viable alternative for the Kachina Village Forest Health Project.*

FVS (Forest Vegetation Simulator) computer runs modeled under different scenarios show diameter, density, and mortality conditions after different thinning scenarios. These scenarios were picked to either show likely cuts that would be made in action scenarios, or to help analyze certain alternatives (such as what happens if we impose a 12-inch cap on cutting trees). Original data was taken from compartment exam points collected in 1989 that had approximately 20 percent sample error and a confidence level of about 67 percent. Seven stands were selected to model that show a range of both densities and site indexes that reflect the Kachina project area in general. In all the scenarios, only ponderosa pine was simulated for cut, even though many of the stands have an oak component.

A 12" cap scenario attempted to cut stands to a 50 BA, which is needed to meet goals and objectives in the Proposed Action such as reducing wildfire potential, increasing understory and increasing individual tree growth. In most cases, 50 BA could not be achieved, so the model cut almost everything (a cutting efficiency of 0.95) between 5 and 12-inch dbh. Four out of the seven stands that were modeled still had considerable BA over 50 BA. This scenario also tends to have slightly lower growth rates for the remaining trees than other alternatives modeled. Growth was evaluated over a 50-year period. In addition, the model indicated a higher mortality rate in stands treated with a 12-inch cap over the same 50-year period. The target densities recommended in the Proposed Action could not be met with the 12-inch cap. Objectives to enhance understory, create grassy openings and reduce wildfire potential could not be met in the majority of the project area if a 12-inch diameter cap is imposed. To enhance the understory, it is desirable to reduce BA to less than 40. Diameter caps, in general, reduce our ability to create grassy openings due to the distribution of trees on the landscape. A 12-inch diameter cap would make it impossible to meet our objective for creating 10 percent grassy openings within treated stands. Higher BA's that would result from a 12-inch cutting cap, would not decrease stand densities that would achieve our goal of reducing fire potential. Fire potential would remain moderate to high across most of the project area.

Alternatives To Be Studied in Detail in the EIS

Alternative A – Proposed Action (PRD 92)

Alternative B – No Action

Alternative C – Proposed Action with 16" Cap Based on the Following Issues

Alternative D - Proposed Action with 18" Cap Based on the Following Issues

Alternative E – Proposed Action with Modifications Based on Issues of Roads and Concerns for Wildlife Habitat Posed by SWFA.

Issue Driving Alternatives C

(McKinnon and Ack – July 18, 2001 and Nowicki – July 18, 2001) - Alternative Suggested with Issues explained

Summary of Comment which developed Alternative: The first point is a social/political issue based on public trust. At the present time, the public perception is that cutting big trees is about revenue generation and not about the restoration of species and ecosystems. A 16-inch cap provides the public with a clear, easily communicated guarantee that distinguishes today's efforts from historical practices. The second point is that the existing large, blackjack ponderosa pine trees will develop into the next generation of old growth in these areas. Retaining all trees with 16-inch dbh or greater would provide some assurance that the Proposed Action would not detriment even further those degraded forest structures.

Description of Alternative C: This alternative places a 16-inch diameter cap on the proposed action. The Proposed Action would drop the element of creating logs and snags due to the lower value of smaller logs and snags that would be created by trees less than 16 inches. There are no other changes to the Proposed Action.

Evaluation Criteria: Based on the comments received, the changes in vegetative structural stage, old growth development, creation of logs and snags, social and economic effects are discussed in the draft EIS. The implementation of a 16-inch diam-

eter cap would result in approximately 7,000 fewer trees thinned from the landscape. This results in a change in VSS structure of less than 1 percent. The creation of grassy openings, based on professional experience, will be difficult to achieve in many of the treated stands.

Issue Driving Alternative D

(McKinnon and Ack – July 18, 2001)– Alternative Suggested with Issues explained

Summary: An evaluation of an 18-inch cap should provide a quantitative explanation of how project objectives will be affected by different diameter caps.

Description of Alternative D: This alternative places an 18-inch diameter cap on the Proposed Action. The Proposed Action maintains the element of creating logs and snags from the trees 16 to 17.9-inch dbh. There are no other changes to the Proposed Action.

Evaluation Criteria: Based on the comments received, the changes in vegetative structural stage, old growth development, creation of logs and snags and social, and economic effects are discussed in the draft EIS. The implementation of a 18-inch diameter cap would result in approximately 2,000 fewer trees thinned from the landscape. There is no change in VSS from the Proposed Action. Creation of grassy openings, based on professional experience, will be difficult to achieve in some stands.

Issues Driving Alternative E

Nowicki – August 16 and September 20, 2001– Alternative Suggested with Issues explained

Summary: An intensive treatment zone should occur in the area around private land. Thinning north of Kelly Canyon should be lighter than that proposed, with a 16-inch cutting cap imposed. No new roads should be constructed, even if only for the duration of the project as roads greatly increase soil compaction, transport of exotic weeds and long lasting impacts on forest structure. The use of hand thinning (south of Kelly Canyon) would minimize soil impacts, protecting the area from further damage, and maximizing its ability to recover and achieve the proposed objectives of forest health and wildlife habitat. Restricting the cutting cap to 9-inch dbh will spare the impacts of soil compaction and disturbance by large machines in the areas south of Kelly Canyon.

Description of Alternative E: Implement "thinning from below, north of Kelly Canyon" within 1/8 mile (660 feet) immediately adjacent to homes "intensive zone." Beyond 1/8 mile, implement a variable "thinning from below" to 60-120 BA north of Kelly Canyon. No new roads should be constructed, even if only for the duration of the project as roads greatly increase soil compaction, transport exotic weeds and long lasting impacts on forest structure. Temporary roads are needed to access areas within the "intensive zone." A phone call to B. Nowicki on 10/31/01 resulted in changing no new temporary roads to constructing temporary roads to accomplish thinning objectives within the "intensive zone." South of Kelly Canyon all thinning should be done by hand with no trees over 9-inch dbh removed.

Evaluation Criteria: Based on the comments received, the changes in vegetative structural stage, old growth development, creation of logs and snags, temporary road construction and change in the potential for wildfire are discussed in the draft EIS. This alternative will result in the use of 2.5 miles of temporary road compared to 5.75 miles with the Proposed Action, Alternatives C and D. The temporary road issue also resulted in more areas of 9" thinning north of Kelly Canyon (556 acres). In total, this alternative will place a 9" cap on 2,668 acres compared to the Proposed Action which has a 9-inch cap on 527 acres. The 9-inch cap and 16-inch cap will make it very difficult to create any grassy openings. The "intensive zone" will create a continuous grassy strip along the private land boundaries.

I approve this range of alternatives to be considered in the Kachina Village Forest Health Project.

/s/Mike Hannemann 12/07/01

Mike Hannemann
Acting Mormon Lake District Ranger